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FORESTS FOR A BETTER WORLD

Interview

FAO Goodwill Ambassador
Her Royal Highness
Princess Basma bint Ali
Passion for sustainability
and conservation

Indigenous Peoples and traditional knowledge through the lens of award-winning photographer **Brent Stirton**

FAO Committee on Forestry celebrates 50 years!
Focus on contributions of forests to the **Sustainable Development Goals**

FAO's work in forestry under the FAO Strategic Framework 2022–2031

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Cover photo: Little girl of the Ngöbe community, on the Osa Peninsula, Costa Rica
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Editorial

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Maria Helena Semedo,
Deputy Director-General, FAO

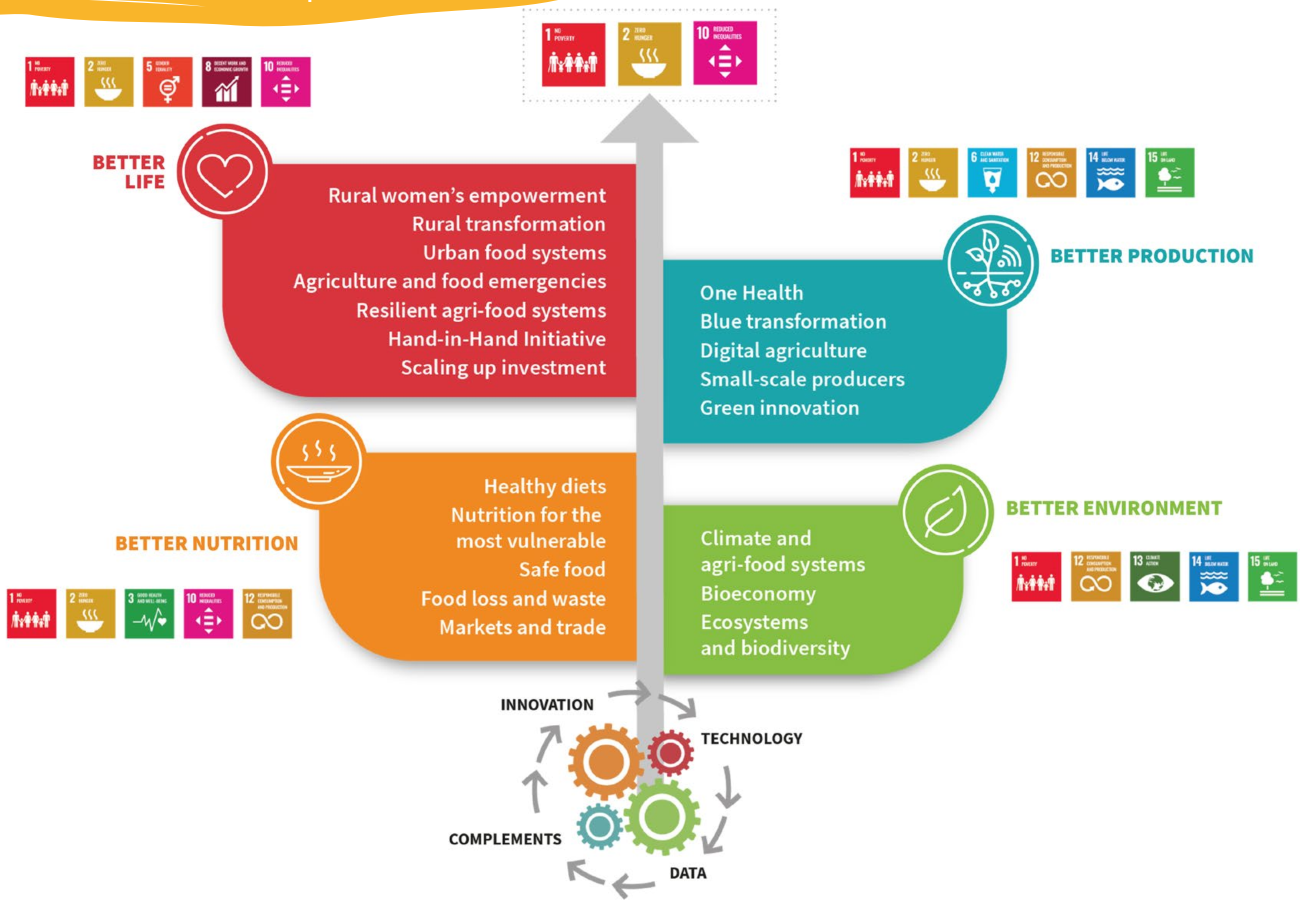
If we are to end hunger while also conserving biodiversity and combating climate change, land degradation and desertification, we must find ways to feed a growing population without clearing or degrading forests. This requires considering the agriculture and forestry sectors jointly as agricultural expansion drives almost 90 percent of global deforestation. We need to promote a model where forests support agriculture, and agriculture supports forests. We must transform agrifood systems to be more efficient, more inclusive, more resilient and more sustainable.

In its Strategic Framework 2022–2031, FAO envisions alternative pathways for the future of food and agriculture that work in harmony with the environment, focusing on the *four betters*: *better production*, *better nutrition*, a *better environment* and a *better life* for all – leaving no one behind. **The four betters shape how FAO supports and contributes to the 2030 Agenda for Sustainable Development**, reflecting the interconnected economic, social and environmental sustainable development dimensions of agrifood systems.

To coincide with the fiftieth anniversary of FAO's Committee on Forestry, this edition of *Unasylva* showcases some of the ways in which forests are delivering the four betters, and underscores how forests are crucial for resilient and sustainable agrifood systems in a changing climate.

Better production cannot be achieved without healthy forests. Forested watersheds supply 75 percent of the world's accessible freshwater, including for agricultural needs. They stabilize soils and prevent or minimize the effects of floods, soil erosion and landslides, all of which can devastate farmer livelihoods and cause serious agricultural losses. More than 70 percent of global food crops benefit from pollination by insects and other animals, many of which depend on forests and trees for nesting and forage. Forests and trees provide a habitat for the

FAO strategic results framework in relation to the Sustainable Development Goals


BETTER LIFE
Rural women's empowerment
Rural transformation
Urban food systems
Agriculture and food emergencies
Resilient agri-food systems
Hand-in-Hand Initiative
Scaling up investment
BETTER PRODUCTION
One Health
Blue transformation
Digital agriculture
Small-scale producers
Green innovation
BETTER NUTRITION
Healthy diets
Nutrition for the most vulnerable
Safe food
Food loss and waste
Markets and trade
BETTER ENVIRONMENT
Climate and agri-food systems
Bioeconomy
Ecosystems and biodiversity
INNOVATION
TECHNOLOGY
COMPLEMENTS
DATA

Source: FAO. 2021. *Strategic Framework 2022–2031* www.fao.org/3/cb7099en/cb7099en.pdf

natural predators of agricultural pests, as well as supplementary feed for livestock.

Agroforestry, where trees are combined with crops and livestock, can increase biodiversity, conserve soils and increase their fertility, enhance agricultural productivity, buffer against desertification and erosion, and strengthen livelihood resilience. FAO is working to ensure that conserving, sustainably using and restoring forests and trees become a cornerstone of sustainable agrifood systems: for example, agrosilvopastoralism, which is a form of agroforestry, can help prevent degradation and desertification in drylands, and is the focus of FAO's Grazing with Trees initiative and the Action Against Desertification programme in support of Africa's Great Green Wall.

FAO also supports countries to strengthen the legal and sustainable production and trade of forest products through its work on forest law enforcement, governance and trade. FAO is a leading partner in "Sustainable Wood for a Sustainable World", a joint initiative of the Collaborative Partnership on Forests.

Forests and trees have a clear role in **better nutrition**. Millions of people depend on foods from forests and trees outside forests to improve the diversity and nutritional quality of their diet. Together with inland and coastal fishery products, wild forest products such as fruit, nuts, leaves, insects and wild meat provide energy, carbohydrates, fats, protein, vitamins and minerals to the diets of an estimated 1 billion people. Forests and trees also act as safety nets, sustaining poor and vulnerable people in times of food insecurity. About 2.4 billion people, mainly in developing countries, use woodfuel for cooking – an essential but sometimes overlooked component of food security and nutrition. Forests and trees are also a source of livelihoods, providing many forest communities with the income they need to purchase nutritious foods.

The COVID-19 pandemic has highlighted the links between human, animal and plant health, and the need for a multidisciplinary "One Health" approach. FAO works with partners to promote One Health, in particular, through the quadripartite that includes FAO, the United Nations Environment Programme (UNEP), the World Health Organization (WHO) and the World Organisation for Animal Health (WOAH), to anticipate, prevent, detect and control diseases that spread between animals and humans. Actions include, among others, preventing environment-related human and animal health threats such as forest loss and degradation, and overexploitation of natural resources. For example, FAO leads the Sustainable Wildlife Management Programme, which works to minimize the risk of spreading pathogens among people, wildlife and livestock by improving the governance of hunting and reducing demand for wild meat.

To achieve a **better environment**, we must harness the full potential of forests and trees to combat climate change. Forests are important carbon sinks as are sustainably produced wood and non-wood forest products, which store carbon over their lifetimes and also have a lighter environmental footprint than many alternative materials. Maximizing the role of forests in combating climate change requires that we halt deforestation, restore degraded forests and promote sustainable forest management – these three forest "pathways" can provide up to one-third of the climate mitigation needed to stabilize global warming below 1.5 °C by 2030.

Forests harbour the majority of the Earth's terrestrial biodiversity. Halting deforestation and forest degradation is essential for reducing biodiversity loss. FAO works towards biodiversity conservation and sustainable use by supporting countries in monitoring forest trends, taking action to halt forest loss and degradation, implementing Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategies and achieving their nationally determined contributions under the Paris Agreement. We are a partner in the Global Environment Facility-funded Food Systems, Land Use and Restoration Impact Programme, which seeks to transform global food and land-use systems by targeting large production landscapes for cocoa, corn, coffee, livestock, palm oil, rice, soy and wheat. FAO recently launched the Framework for Ecosystem Restoration Monitoring to help monitor restoration efforts as part of the United Nations Decade on Ecosystem Restoration. Restoration efforts focus on both terrestrial and marine ecosystems, including coastal ecosystems such as mangroves.

The fourth better – a **better life** – promotes inclusive economic growth to reduce inequalities and ensure that women, youth, Indigenous Peoples and other marginalized groups participate equally in land use-related decision-making and benefit sharing. Access to land, including forests, is a key determinant of the daily food security and income of billions of people, particularly the rural poor. Achieving a better life requires the responsible governance of tenure, the preservation of ancestral territorial management practices and agrifood systems, ensuring Indigenous Peoples' rights to lands and territories. FAO and partners are scaling up the efforts of the Forest and Farm Facility, which works with forest and farm producer organizations representing more than 25 million small-scale farmers, including Indigenous Peoples, in 30 countries, to improve livelihoods and increase access to resources and markets while contributing to sustainable and gender-responsive value chains. The Mountain Partnership Products initiative boosts local mountain economies by strengthening value chains and promoting a labelling scheme for small-scale mountain producers.

Achieving all four betters can increase agricultural productivity while safeguarding our valuable natural assets. It is only by building synergies between forestry and agriculture, and identifying opportunities for trade-offs, working more inclusively and collaboratively that we will be able to make the transformation towards sustainable agrifood systems that leave no one behind. To accelerate this transformation, we need innovation and science, data, bold policies, developing capacities, solid institutions and large investments. Special attention should be given to gender equality and women's empowerment and to Indigenous Peoples as right and knowledge holders and guardians of our planet's biodiversity.

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Director-General
Qu Dongyu

"Protecting and restoring forests – and managing them more sustainably – are cost-effective options to provide multiple benefits for both people and the planet."

The Twenty-Sixth Session of the Committee on Forestry

Malgorzata Buszko-Briggs,
Secretary of the Committee on Forestry, FAO

This year marks the fiftieth anniversary since the first session of the Committee on Forestry (COFO), FAO's highest statutory body on forests. Established in 1971 as a standing committee of the FAO Council, the stated aim of COFO was to "periodically review forestry problems of an international character and advise the Director-General on the medium- and long-term programme of work of the Organization in the field of forestry and on its implementation."[1] Prior to COFO, the main global forum for discussion of international forestry issues was the FAO Conference, first convened in 1945, with early sessions centring on restoring forests and replenishing timber stocks after the Second World War.

Since its first session in 1972, COFO has met regularly at FAO headquarters in Rome, usually at two-year intervals. It brings together heads of forest services and other senior government officials to identify emerging policy and technical issues, seek solutions and advise FAO and others on appropriate action. COFO participation is open to all FAO Members, and attendance has risen over the

COFO 26 opening session

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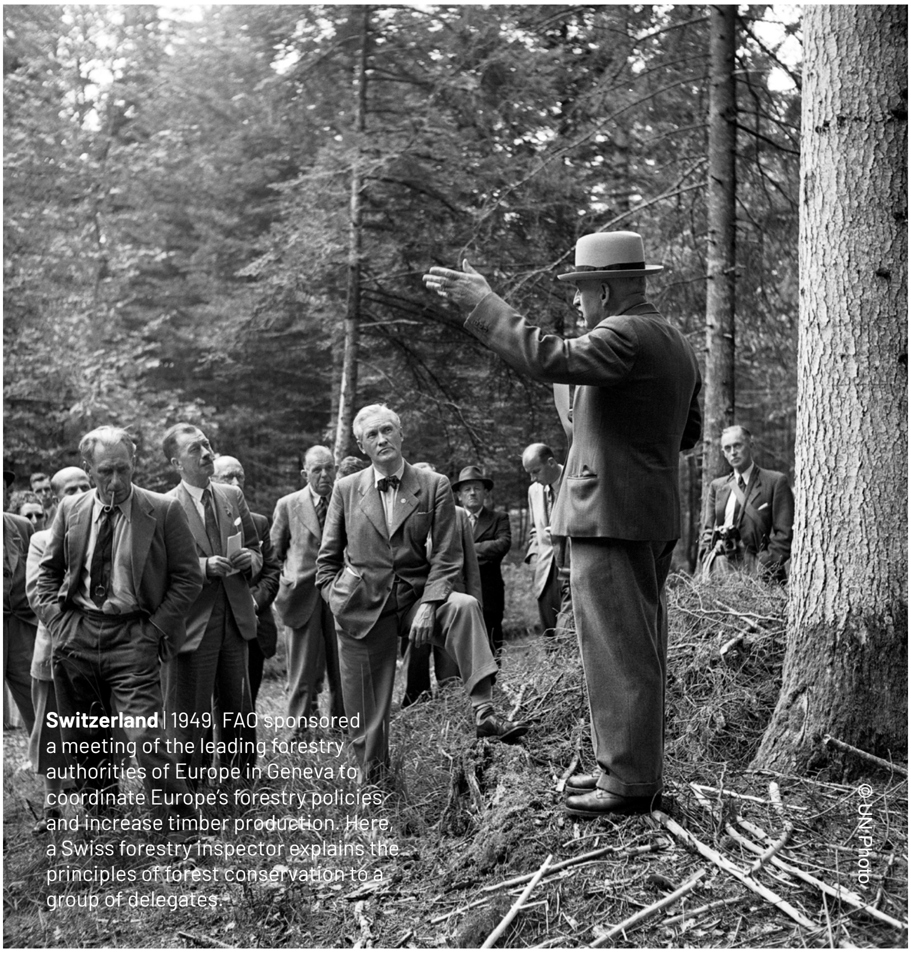

Switzerland | 1949. FAO sponsored a meeting of the leading forestry authorities of Europe in Geneva to coordinate Europe's forestry policies and increase timber production. Here, a Swiss forestry inspector explains the principles of forest conservation to a group of delegates.

© UN Photo

years, from 55 Member Nations in 1972, to 120 Member Nations and one Member Organization in 2022. In recent years, other international organizations, United Nations agencies and programmes, and, increasingly, non-governmental groups also participate in COFO as observers. Since 2009, COFO has run concurrently or back-to-back with World Forest Week, a complementary series of events hosted by FAO Members and partner organizations, showcasing best practices and actions on the ground contributing to the global international debate.

COFO continues to provide a platform for exchange and dialogue among participants and to give strategic direction for the future work of FAO in forestry. Through collaboration with other FAO technical committees on the Sustainable Development Goals, agrifood systems transformation, ecosystem restoration, climate change and biodiversity, it helps strengthen policy and programme coordination, and contributes to greater synergies across the Organization. COFO also provides recommendations for action to FAO Member Nations and supports the global policy debate through the discussion of technical and forest policy issues of international importance.

COFO also considers input and recommendations from other forestry statutory bodies, including the Regional Forestry Commissions (which provide countries with a platform to discuss forest-related concerns at regional level), the Committee on Mediterranean Forestry Questions *Silva Mediterranea*, the Advisory Committee on Sustainable Forest-Based Industries (ACSFI), the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC) and the Working Group on Dryland Forests and Agrosilvopastoral Systems.

In 2022, COFO took place in hybrid format for the first time, with events both in person and online, following an entirely virtual format for the last COFO in 2020, as a result of the COVID-19 pandemic.

The Twenty-Sixth Session of COFO (COFO 26) explored the many invaluable ways in which forests can contribute to FAO's new Strategic Framework 2022–2031 and the four betters: better production, better nutrition, a better

COFO26
COMMITTEE ON FORESTRY
ROME | 3-7 OCTOBER 2022

FAO
H.R.H. PRINCESS BASMA BINT ALI OF JORDAN
DIRECTOR-GENERAL
CHAIRPERSON COFO
CÉCILE NDJEBET WMA CHAMPION
ANALI BUSTOS
BULGARIA

From left to right: Princess Basma bint Ali, Jordan; Qu Dongyu, Director-General, FAO; Glenn Hargrove, acting Chair, COFO 26; Cécile Ndjebet, African Woman's Network for Community Management of Forests; Analí Bustos, Youth Forest Change-maker 2022

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environment and a better life, and endorsed the priority areas of work in forestry for 2022–2023 and beyond, which are closely aligned with the strategic framework.

COFO 26 examined FAO's flagship report, *The State of the World's Forests 2022 – Forest pathways for green recovery and building inclusive, resilient and sustainable economies*,[2] and guided FAO to continue supporting the provision of knowledge and mobilization of finance for forestry and agrifood systems transformation.

It noted the outcomes of the XV World Forestry Congress held in May 2022 in the Republic of Korea, in particular the Youth Call for Action to support youth engagement in forestry.

It discussed FAO's work on strengthening the role of forest ecosystems in global climate policy, and on promoting the development and sustainable production and consumption of wood and wild forest products, contributing to improved livelihoods.

It provided guidance on how FAO should support Members to halt forest loss and degradation, strengthen forest fire management, and scale up the restoration of degraded lands and drylands, particularly through the implementation of the United Nations Decade on Ecosystem Restoration.

Moreover, COFO 26 reflected on the importance of scaling up the conservation and sustainable use of forest biodiversity as part of action to mainstream biodiversity across agricultural sectors.

It also stressed the importance of actively identifying the mutually beneficial linkages between agriculture and forestry, by analysing data on these interdependencies, and compiling case studies and good practices.

Lastly, COFO 26 recommended that FAO strengthen its leadership role in the Collaborative Partnership on Forests (CPF) and in facilitating the participation by CPF members in the mid-term review of the International Arrangement on Forests.

In coming years, COFO will continue looking for ways (through its multiyear programme of work) to link high-level political commitment with effective forest policies and practices on the ground, and to help forests and forestry reach their potential to support the achievement of global goals and FAO's four betters, including the Organization's pledge to leave no one behind.

Notes

1. **FAO COFO**. 2005. *Seventeenth Session of the Committee on Forestry, Rome, Italy, 15–19 March 2005. History of the Committee on Forestry*. COFO/2005/INF/8. Rome. www.fao.org/3/j4566e/j4566e.htm
2. **FAO**. 2022. *The State of the World's Forests 2022 – Forest pathways for green recovery and building inclusive, resilient and sustainable economies*. The State of the World's Forests (SOFO). Rome. https://doi.org/10.4060/cb9360en
3. **FAO**. *2022. Report of the Twenty-Sixth Session of the Committee on Forestry.*

For more information about the Twenty-Sixth Committee on Forestry

www.fao.org/events/detail/cofo-26

UNITED NATIONS
FOOD SYSTEMS SUMMIT 2021
UN CLIMATE CHANGE CONFERENCE UK 2021
XV WORLD FORESTRY CONGRESS

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The XV World Forestry Congress

Republic of Korea | **May 2022**, Seoul, Republic of Korea - FAO Director-General Qu Dongyu.

Peter Csoka, Associate Secretary-General, XV World Forestry Congress

Dr Eunsik Park, Secretary-General of the XV WFC

Originally scheduled for 2021, the XV World Forestry Congress was to address many of the key challenges of the twenty-first century: climate change, biodiversity loss, desertification, water scarcity, malnutrition and hunger, to name a few. When the Korea Forest Service and FAO began preparations for the Congress, to be held in Seoul, Republic of Korea, we didn't know that another challenge would need to be added to the list. The COVID-19 pandemic brought into sharp focus considerations and challenges that had long been in the background, and redefined our understanding of the role of forests and trees in health, development and human relations.

In the face of the pandemic, the organizers decided to postpone the Congress to 2–6 May 2022 and turn it into a hybrid event.

This decision proved fortunate, enabling attendance by a record 15 000 participants from 160 countries, despite the concerns and restrictions, with about 5 000 attending virtually. Participants and organizers alike deserve credit for their commitment to public safety: the first global event of its size held amid the harsh waves of the pandemic, the Congress took place safely, and no attendee contracted the disease.

The Congress generated unique attention with around 1 100 news articles and impressive

> **"Forests, forestry and forest stakeholders offer major solutions to the challenges the world currently faces"**
>
> *Source*:
> The Seoul Forest Declaration

web-based and social media outreach. Its official website attracted 700 000 visitors and 15.5 million hits over 20 months. On social media, 68.4 million readers saw 17 000 messages, generating 342 000 interactions. FAO's corporate channels published 270 posts, which reached 23 million accounts. We are proud that the Congress was able to extend its influence, including through these channels.

The one-week event involved 53 main sessions, addressed by more than 390 speakers,[i] and included a high-level dialogue and two ministerial forums, all with simultaneous interpretation in four languages (available in person and virtually). Participants were also able to enjoy five pre-Congress events, 116 side events, 95 poster presentations and 59 speeches at the Speakers' Corner. The Congress attracted over 2 000 voluntary contributions (papers, posters and videos), of which 1 064 have now been published (available at www.fao.org/event/world-forestry-congress).

The collective wisdom of the global community generated rich outputs, and two powerful signals emerged: *Forests can help solve many of the world's biggest challenges, but action is needed now because we have no time to lose*.

Congress participants identified key directions for the way ahead through four "outcome documents": the Seoul Forest Declaration, the XV World Forestry Congress Action Points, the Ministerial Call on Sustainable Wood, and the Work with Us – Youth Call for Action. Through these documents, the Congress stressed the following:

- Forests transcend political, social and environmental boundaries: responsibility for forests should thus be shared and integrated across institutions, sectors and stakeholders; coordinated and meaningful action is needed on many fronts.
- Investment in forest and landscape restoration globally needs to triple by 2030 to meet internationally agreed commitments and targets on restoring degraded land.
- The principles of sustainable forest management should be applied beyond forestry in developing greener and more circular bioeconomies.
- Innovative green financing mechanisms are needed to promote the conservation, restoration and sustainable use of forests.
- Legal and sustainably produced wood has potential to transform the building sector, provide renewable energy and innovative new materials, and underpin a circular bioeconomy.
- Forest-based solutions must include the perspectives of family farmers, smallholders, forest communities, Indigenous Peoples, women and youth, and empower these stakeholders to participate and benefit equitably.

There was strong consensus that healthy forests are crucial for reducing the risk of future pandemics and providing other essential benefits for human health. Ensuring such benefits requires sound decision-making and effective action, which, in turn, require research, solid information and good education.

The Congress developed a rich set of recommendations – through the Congress Action Points and the Youth Call for Action – for purposeful action on all fronts. It also made recommendations for communicating the Congress outcomes to other global forest-relevant fora, including the Conferences of the Parties to the Rio Conventions and various FAO governing bodies.

For more information about the XV World Forestry Congress:

www.fao.org/event/world-forestry-congress

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[i] The main sessions can still be watched by following the links at www.fao.org/event/world-forestry-congress/wfc-programme

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The 2022 edition of The State of the World's Forests

Myanmar | A Rohingya refugee volunteer watering plants inside a refugee camp in Cox's Bazar. He has been engaged with FAO's planting activities aimed at restoring degraded forests since 2018.

Ewald Rametsteiner,
Deputy Director,
Forestry Division,
FAO

Humanity faces numerous challenges in overcoming the social and economic consequences of the COVID-19 pandemic, the war in Ukraine and its impact on global food security, the accelerating climate crisis and biodiversity loss.

Cost-effective and equitable solutions are needed that can be implemented rapidly and at scale. There will be no healthy economy on an unhealthy planet. Environmental degradation is contributing to climate change, biodiversity loss and the emergence of new diseases. While the international debate has increasingly focused on the contribution of forests to the world's climate and ecosystem services, the potential of forests and trees to contribute to economic recovery, and resilient and climate-neutral economies is often overlooked.

The recent *The State of the World's Forests 2022*[1] report by FAO explores three interlinked and mutually reinforcing pathways that, if pursued could unlock the transformative potential of forests:

Halting deforestation and maintaining forests could avoid emitting 3.6 +/- 2 gigatonnes of CO_2-equivalent ($GtCO_2eq$) per year between 2020 and 2050 – about 14 percent of the reduction of greenhouse gas emissions needed up to 2030 to keep planetary warming below 1.5 °C. It could also safeguard more than half the Earth's terrestrial biodiversity. Forests are the largest terrestrial pool of carbon and of biodiversity, yet they are shrinking.

Restoring degraded lands and expanding agroforestry could be carried out over 2.2 billion hectares (ha) of degraded land identified as suitable for restoration, of which 1.5 billion ha – an area twice the size of Australia – may benefit from mosaic restoration combining forests and trees with agriculture. A further 1 billion ha of croplands on previous forestlands would benefit from increasing tree cover to boost productivity and improve ecosystem services. Restoring degraded land through afforestation and reforestation could cost-effectively take 0.9-1.5 $GtCO^2eq$ out of the atmosphere each year between 2020 and 2050, equivalent to removing 195 to 325 million gasoline-powered passenger vehicles off the road.

Sustainably using existing forests and building green value chains would help meet future demand for more renewable materials, with global consumption of all natural resources expected to more than double from 92 billion tonnes in 2017 to 190 billion tonnes in 2060. Using sustainable wood in construction, for example, can store carbon and address climate change while helping to build more resilient, sustainable local economies.

To harness the full transformative potential of trees and forests, and meet climate, biodiversity and land-degradation-neutrality targets, investments in the three interrelated forest pathways must triple by 2030. If well planned and executed, these investments can provide net financial benefits, including increasing productivity and resilience through restoration efforts or agroforestry.

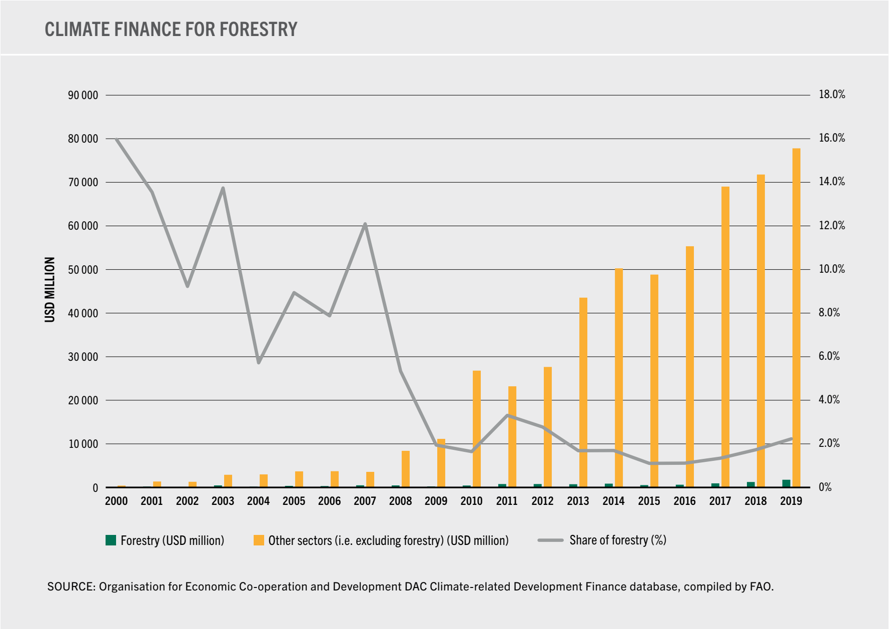
New investment must also be scaled up in areas such as climate finance, green recovery programmes and private investment support.

Looking into actions to repurpose incentives for agricultural producers – currently almost USD 540 billion per year – could contribute substantially to making our agrifood systems more sustainable.

Smallholders, rural communities and Indigenous Peoples, who own and manage nearly half (4.35 billion ha) of the world's forest and farm landscapes, will be crucial partners in the effective implementation of the three forest pathways. Smallholders with secure tenure rights tend to make long-term investments in their lands and forests. In addition, getting finance to small-scale producers is essential, as only 1.7 percent of climate finance reaches them. Policies and institutions need to support the adoption of more sustainable practices, including during the transition period, and help soften the risks associated with climate change (e.g. vulnerability to fires, pests and drought), and mitigate perceived risks for investors.

Companies in forest-based value chains will be essential partners in the development of circular economies. Many are already expanding the range of forest products as substitutes for emissions-intensive materials and increasing processing efficiency. Local forest growers and processors can obtain more benefits by strengthening links with buyers and developing capacity through producer organizations.

Transformative action can only be achieved through integrated approaches as highlighted during the United Nations Food Systems Summit. The transformation of agrifood systems and the protection, restoration and management of forests must go hand in hand.



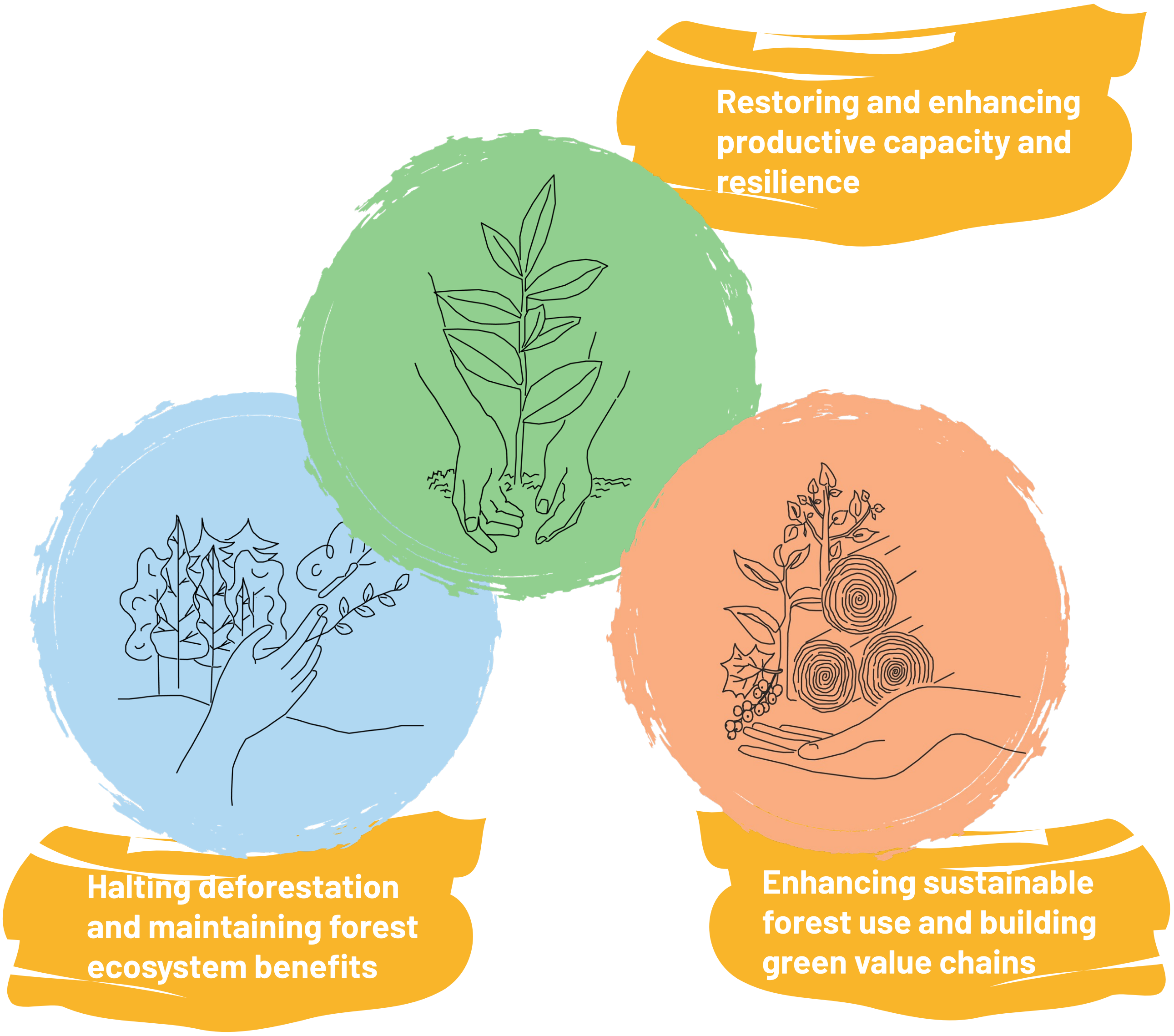
SOURCE: Organisation for Economic Co-operation and Development DAC Climate-related Development Finance database, compiled by FAO.

Source: Figure on p. 60 in FAO. 2022. *The State of the World's Forests 2022 – Forest pathways for green recovery and building inclusive, resilient and sustainable economies*. Rome. https://doi.org/10.4060/cb9360en

Through its Strategic Framework 2022–2031 around the four fundamental aspirations of better production, better nutrition, a better environment and a better life, FAO is dedicated to working towards more efficient, inclusive, resilient and sustainable agrifood systems and promoting the contribution of forests to this process, through conservation, restoration and sustainable use.

On 3–7 October 2022, the Committee on Forestry (COFO) brought together representatives from all continents, and provided further opportunity to discuss how to effectively integrate the three forest pathways in wider agrifood systems transformation as a means for simultaneously achieving economic and environmental goals.

The forest pathways


Restoring and enhancing productive capacity and resilience
Halting deforestation and maintaining forest ecosystem benefits
Enhancing sustainable forest use and building green value chains

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Notes

1 **FAO**. 2022. *The State of the World's Forests 2022 – Forest pathways for green recovery and building inclusive, resilient and sustainable economies*. Rome. https://doi.org/10.4060/cb9360en

Fostering effective and efficient action on the ground

through the United Nations Decade on Ecosystem Restoration

Kenya | A man holds a sapling at a tree nursery

Tiina Vähänen,
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The United Nations Decade on Ecosystem Restoration 2021–2030 (hereafter the "UN Decade") was proclaimed by the United Nations General Assembly through Resolution A/RES/73/284 of 1 March 2019, with the aim of supporting and scaling up efforts to prevent, halt and reverse the degradation of all types of ecosystems worldwide, and raise awareness of the importance of effective ecosystem restoration. To boost the implementation of the UN Decade, significant progress has been achieved in several areas. The UN Decade was officially launched in June 2021 with a strategy[1] that defines (i) the scope of ecosystem restoration as encompassing a wide continuum of activities that contribute to protecting intact ecosystems and repairing degraded ecosystems; and (ii) its theory of change, which identifies the problem and barriers, sets the UN Decade's vision and objectives, and describes the pathways to overcome these barriers and achieve the vision. An action plan[2] for the operationalization of this strategy was released in August 2022.

UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION

2021-2030

To support the UN Decade and its strategy, ten principles for ecosystem restoration,[3] which underpin the full set of ecosystem restoration activities throughout the UN Decade, were released in September 2022 with the support of the FAO-led Taskforce on Best Practices and involving several UN Decade partners. The ten principles state that good ecosystem restoration 1) contributes to global policy frameworks; 2) promotes fair and inclusive engagement; 3) includes a continuum of restorative activities; 4) aims at the highest recovery possible to benefit nature and people; 5) addresses the causes of degradation; 6) incorporates all types of knowledge; 7) sets ecological, cultural and socioeconomic goals; 8) tailors activities to local and land- and seascape contexts; 9) measures results and adapts actions; and 10) integrates policies and measures for lasting impacts.

The United Nations Environment Programme (UNEP) and FAO are the lead implementing agencies of the UN Decade. Its governance structure comprises a core team, a Strategy Group, a Coordination Group, five taskforces (on best practices, finance, monitoring, science and youth), more than 100 partners and an Advisory Board. In addition, a Multipartner Trust Fund (MPTF) was established in 2021 by FAO and UNEP. It acts as the catalytic financial mechanism to kick-start and facilitate actions supporting World Restoration Flagships. Rather than constituting a funding facility to finance all activities needed to implement the full strategy of the UN Decade, the MPTF will catalyse and support strategic interventions that contribute to an informed and coordinated movement for turning the tide on ecosystem degradation. To this end, the MPTF Executive Board has approved a five-year programme to provide catalytic support to directly enable the UN Decade's success.

In order to promote practical experience related to restoration efforts across different locations and ecosystems, the first call for World Restoration Flagship nominations was launched in 2022. A restoration flagship initiative of the UN Decade should be the first, best or most promising example of ecosystem restoration, adding value, embodying the ten restoration principles and inspiring others to undertake or accelerate restoration at significant scale. The first call for flagships received 154 expressions of interest and 73 government-endorsed nominations. Together, they cover 74 countries and represent almost all the major ecosystem types (except urban areas). They represent 96 million ha of achieved restoration, and almost 160 million ha are expected to be under restoration by 2030. With an estimated potential of creating 17 million direct and indirect green jobs in ecotourism, and restoration project management and monitoring, they are expected to increase the resilience of over 76 million households by 2030.

A set of the World Restoration Flagships are expected to be announced by the end of 2022 and communicated widely. A limited number of flagship initiatives will also be selected by FAO and UNEP where substantial activities on the ground can be supported directly through the MPTF, for example through the provision of technical assistance by implementing partners at the country or regional level.

Notes

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Green innovations

The way ahead with digital solutions

Myanmar | Ramree Island | agricultural land over former mangrove forest, 2021

@FAO/SEPAL

The science and technology of cloud science and technology of cloud computing, machine learning and data cubes have evolved over the last decades to meet the needs of countries for greenhouse gas reporting as defined in the Intergovernmental Panel on Climate Change (IPCC) 2019 Guidelines for National Greenhouse Gas Inventories (NGGIs).[1] Also, with the latest publications of the IPCC Sixth Assessment Report, it is time to move from the realm of research, development and demonstration in a few countries to a broader operationalization of these technologies in all countries.

The IPCC Technical Support Unit of the Taskforce on NGGIs is developing tools to support the use of its inventory software by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in preparing their land representation, including through spatially explicit approaches, for estimating greenhouse gas emissions resulting from the agriculture, forestry and other land-use (AFOLU) sector, and has invited the cooperation of FAO, the Group on Earth Observations (GEO) and the Global Forest Observations Initiative (GFOI) on this matter.

GEO and GFOI have identified the System for Earth Observation Data Access, Processing and Analysis for Land Monitoring (SEPAL) platform, operated by FAO and funded by GFOI partner Norway, as an environment that can enable UNFCCC Parties and GEO members to access cloud computing services. The IPCC aims to provide high-quality open-source software available in SEPAL that performs spatially explicit accounts of AFOLU emissions. The goal is to identify tools suitable for spatially explicit monitoring of land cover change, which can support greenhouse gas accounting in the land sector. The National Forest Monitoring Team at FAO is currently developing the image analysis component of the add-on software when using the wall-to-wall methodological approach for land representation.

SEPAL provides a platform for users to access satellite imagery from public sources, such as the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA), but also commercial data, such as the Planetscope series from the programme for tropical forests of Norway's International Climate and Forest Initiative (NICFI), and perform change detection and land cover classifications using a set of easy-to-use tools. SEPAL was designed to be used in developing countries where internet access is limited and computers are often outdated and thus inefficient for processing satellite imagery. It achieves this by drawing on a cloud-based supercomputer, which enables users to process, store and interpret large amounts of data. Many more advanced functions are available in SEPAL for more advanced GIS and geospatial users.

Based on these tools and improvements in the cloud computing environment, the application of a cloud-based platform such as SEPAL for innovations has been widespread. The application domains are very wide, spanning from environmental disaster monitoring and early warning for natural hazards, to impact and land restoration suitability applications. FAO's Forestry Division is looking into the new digital solutions more than ever!

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More on FAO's work on science, technology and innovation: www.fao.org/science-technology-and-innovation/about/en

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Notes

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Tajikistan | Cooking a traditional rice dish for dinner on an open fireplace

Promoting the transition from traditional to modern woodfuel uses

©FAO/Nozim Kalandarov

Xia Zuzhang,
Forestry Officer,
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Recent developments in the energy sector have sparked renewed interest and lively debate about woodfuels, which have been widely used traditionally for cooking and heating in many developing countries, and more recently as a modern renewable energy source for the generation of heat and electricity, mostly in industrialized countries. Woodfuels have received heightened attention with the recent oil and gas price hikes in the international energy markets and the European Union's (EU) process to revise the Renewable Energy Directive[1] in September 2022.

Woodfuels are traditionally used for cooking and heating by around 2.4 billion people with limited options for household energy.[2] This represents roughly one-third of the world's population and two-thirds of households in Africa. The traditional use of woodfuels supports the livelihoods of millions of people. Globally, the bioenergy industry (solid biomass, liquid biofuels and biogas) is currently the second largest employer in the renewable energy sector.[3]

Woodfuels are often available locally, easily accessible, usually affordable and relatively reliable in most world regions. This makes them an important source for meeting the basic energy needs of low-income households in developing countries, but also those of developed countries that use modern wood energy as part of their energy systems. Demand for woodfuels tends to increase in times of shortages of modern energy sources (electricity and petroleum fuels), or conventional energy supply interruptions, as can arise from natural disasters, wars and conflicts, or humanitarian crises.

FAO estimated that about half of the wood extracted from forests is burnt as an energy source,[4] which has significant implications for the development of wood resources for value-added uses. The large-scale use of primary wood material for woodfuels raises concerns about their social, economic and environmental impacts, including indoor air pollution leading to health problems, forest degradation, which affects forest ecosystem services, and greenhouse gas emissions associated with climate change.

In addition, some woodfuels have entered the international energy markets as commercial products used on an industrial scale. Modern applications of woodfuels, particularly wood pellets, include: uses for heating residential and commercial buildings, and in industrial processes; electricity generation and cogeneration of heat and power; and the production of liquid fuels for the transport sector.

There is considerable interest in increasing the use of bioenergy to help achieve net-zero emissions in the energy sector. The road map set out for the global energy sector by the International Energy Agency (IEA) indicates that the modern use of bioenergy, mainly in the form of woodfuels, would need to increase by around 60 percent between 2020 and 2050, and that this would coincide with a shift away from the traditional use of biomass. Most woodfuels would need to be sourced from dedicated plantations to prevent further degradation of natural forests, the restoration of degraded forests and agroforestry, as well as the more efficient use of wood residues and post-consumer wood, avoiding economic, social and environmental harm.[5]

The revision of the European Union Renewable Energy Directive (known as RED III),[1] however, signalled a change in circumstances for the use of primary wood for bioenergy on an industrial scale, as it calls for the removal of subsidies for bioenergy sourced from primary woody biomass,[6] the cascading use of wood and progressive phasing down of biomass in the renewable energy mix. These changes may reflect the decade-long debate about the climate impacts of large-scale use of modern woodfuels, sustainability criteria, and the development of the circular bioeconomy concept.

The key concerns when promoting the transition from traditional to modern woodfuel applications are that these should be clean and efficient, and, equally importantly, the methods of wood production and transformation should be economically and environmentally sustainable. Appropriate incentives for both public and private players are therefore needed, such as: effective policies to ensure that the prices of wood as an energy source better reflect its true cost; financial assistance for establishing woodfuel plantations and restoring degraded forests; and enterprise development services to encourage the provision of innovative bioenergy products and services.

FAO has been supporting Members in promoting sustainable production and consumption of woodfuels through technical assistance and information sharing. Recent ongoing activities include analysis and assessment of the policies and strategies relevant to interventions in the charcoal sector in Africa; a forest management and green charcoal value chain project in Uganda; a project to strengthen the potential of sustainable wood energy in the Congo; new modelling to estimate global woodfuel production; greening the humanitarian response in displacement settings for enhanced energy access and livelihood resilience; and development of an online platform for information sharing on wood energy.

Notes

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Kenya, Lokusero, Laikipia County | Women belonging to the Olingo Lelatia Women Group carry firewood after collecting with the group in the Mukogodo Forest

© FAO/Luis Tato

One Health

Connecting the dots between forests and biodiversity and the health of people, animals, plants and the environment

Emerging infectious diseases (EIDs) are becoming more frequent[1] and threatening global health, economies and security.[2] Examples include the highly pathogenic avian influenza (HPAI), Ebola, Nipah virus infection, severe acute respiratory syndrome (SARS) and coronavirus disease (COVID-19). More than five new diseases emerge in humans every year, any one of which has the potential to spread and become pandemic.[3]

Nearly three-quarters of EIDS are zoonotic, meaning they are caused by microbes of animal origin,[2] mostly wildlife. These microbes "spill over" due to contact among wildlife, livestock and people.[3] Land-use change, including deforestation, wildlife habitat encroachment, and agricultural expansion and intensification, as well as other factors, are increasing that contact, leading to a rise in EIDs and the potential for pandemics.[4]

The One Health approach, co-led by FAO, the World Organisation for Animal Health (OIE), the World

Kristina Rodina, Forestry Officer, National Forest Monitoring and Forests and Climate, FAO

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Kenya | A Kenyan pastoralist provides water for her cattle at a water point in the Mukogodo Forest

Working definition of "One Health" by the One Health High-Level Expert Panel

One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems.

It recognizes that the health of humans, domestic and wild animals, plants and the wider environment (including ecosystems) are closely linked and interdependent.

The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems while addressing the collective need for clean water, energy and air, and safe and nutritious food, taking action on climate change and contributing to sustainable development.

Source: FAO. 2021. *Joint Tripartite (FAO, OIE, WHO) and UNEP Statement. Tripartite and UNEP support One Health High-Level Expert Panel's (OHHLEP) definition of "One Health"*. 1 December 2021. www.fao.org/3/cb7869en/cb7869en.pdf

Health Organization (WHO) and the United Nations Environment Programme (UNEP), brings together multiple sectors, agencies and experts to address risk factors for EIDs and work towards optimal health for people, animals and the environment.

The cost of prevention through early detection of pathogen spillover at the wildlife–livestock–human interface is lower than the cost of response, as shown by the World Bank after the HPAI crisis.[5] One Health highlights that early investment to control zoonoses at

FAO Forestry products

- Policy brief on global emergence of infectious diseases: links with wild meat consumption, ecosystem disruption and biodiversity loss;
- Sustainable Wildlife Management (SWM) Programme's White Paper and Policy Brief on build back better in a post-COVID-19 world: reducing future wildlife-borne spillover of disease to humans;
- Committee on Agriculture (COAG) Info Document: reducing wildlife-borne spillover of pathogens to domestic animals and humans;
- Collaborative Partnership on Sustainable Wildlife Management (CPW) Joint Statement on the COVID-19 challenge: zoonotic diseases and wildlife;
- Policy brief on the impacts of COVID-19 on the forest sector: how to respond;
- Forestry Working Paper No. 18 on Forests for human health and well-being;
- UN-REDD Programme's Info Brief: the COVID-19 crisis and UN-REDD: catalysing forest solutions for recovery responses;
- Committee on Forestry 25 COVID-19 FAO Forestry Week's Summary Report;
- Natural resource sectors are vital in reducing the risk of disease emergence and pathogen spillover: the example of forestry, ecology and society.

their animal source is key to protecting people.[6]

By integrating One Health in its Strategic Framework 2022–2031 as one of its Programme Priority Areas for better production, FAO aims to strengthen human, animal, plant and environmental health to ensure resilient and sustainable agrifood systems.

FAO's Forestry Division has been instrumental in tackling EID drivers and root causes, in collaboration with its partners. Initiatives include:

- work on restoring degraded ecosystems under the ongoing United Nations Decade on Ecosystem Restoration;
- implementing the Sustainable Wildlife Management (SWM) Programme on wild meat consumption, food security, wildlife conservation and the spread of zoonoses;
- implementing the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) to reduce forest emissions and build better, greener and more resilient futures in developing countries;
- monitoring risk factors and drivers, using the SEPAL platform; and,
- chairing the Collaborative Partnership on Forests (CPF) and providing the secretariat for the Collaborative Partnership on Sustainable Wildlife Management (CPW).

One Health is now recognized as an approach that gives due attention to the vital role of the natural resources sectors in reducing the risk of EIDs. The set of important multilateral negotiations, such as the Post-2020 Global Biodiversity Framework, the Global Forest Finance Pledge[7] and the Glasgow Leaders' Declaration on Forests and Land Use,[8] presents a unique opportunity to integrate One Health into a strategic vision for biodiversity, forests, climate and planetary health.

Notes

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©Wiñak

Collective action to achieve better production and "good living"

The case of the Wiñak association in Napo, Ecuador

Ecuador | Wiñak woman with her children

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National Facilitator,
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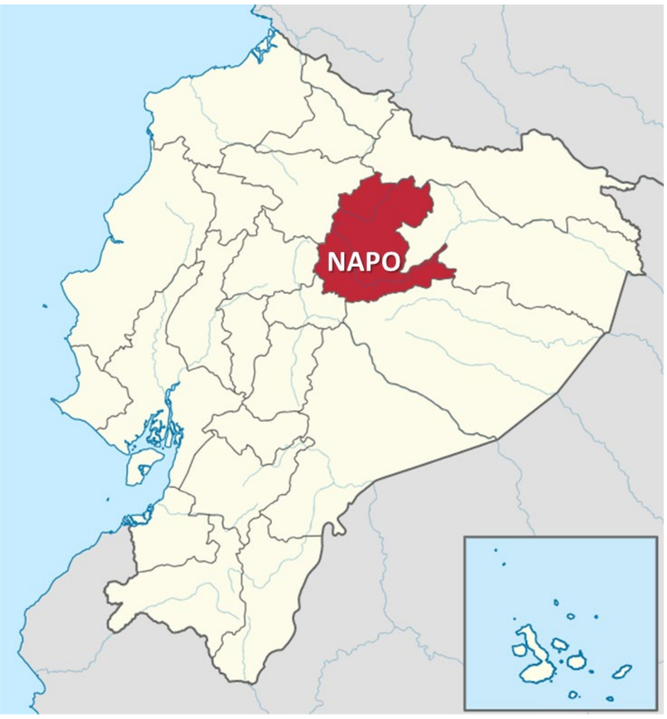
Facility, FAO

Family farmers and small-scale producers play a pivotal role in agriculture and forestry. It is estimated that 90 percent of the world's farms are family farms, producing around 80 percent of the world's food. Small farms, less than 2 hectares (ha), account for 84 percent of the world's farms and cover 12 percent of all agricultural land while producing about 35 percent of the world's food.[1] Many of these small-scale producers are members of forest and farm producer organizations (FFPOs). Through collective, voluntary and concerted action, these self-governing groups help their members participate in local, national and international markets, and revitalize and diversify rural economies.[2-4] Forest and farm producer organizations also provide support for improving sustainable production, increasing bargaining power and accessing markets and finance, among other services.[5, 6] They often integrate sociocultural values and knowledge of agrifood systems into their operations, advocating for intercultural markets that reinforce local prosperity and well-being.[7–9] If provided with adequate support, FFPOs can continue to improve their members' livelihoods and income-generating activities while contributing to the sustainable management of natural resources. The Wiñak association is doing just that with the Indigenous Kichwa people in Napo, Ecuador.

The Amazonian Kichwa and the Wiñak association

The Amazonian Kichwa in the Napo Province are one of the most represented nationalities in the Ecuadorian Amazon. During the colonial period, the Kichwa were forced to work in construction, agriculture, mining and other sectors. They rebelled against harsh conditions and abuse, and were persecuted as a result. Persecution survivors were incorporated into the *encomienda* system to serve the Spaniards, while others fled to the Amazon rainforest.[10–12] The end of the colonial era did not improve the Kichwa's socioeconomic status. Rubber exploitation in the mid-1800s and the arrival of the English perpetuated their condition and their subjugation by outsiders. Land reforms after the mid-1900s resulted in population growth, as migration was encouraged to develop agricultural production and expand agriculture into forests. This reduced the land available to the Kichwa for hunting, fishing and subsistence agriculture, using practices that respect the natural cycles of ecosystems and form the basis of the chakra farming system.[13–15]

Limited land access and threats to their territorial integrity in the 1980s and 1990s led to an uprising, which mobilized diverse actors at different territorial levels in support of sustainable agricultural production. The Wiñak association was established in 2010 by 211 producers to improve the livelihoods of Indigenous households and promote the *sumak kawsay* (good living in Kichwa language). The Amazonian Kichwa institutional and organizational structure is reflected in the constitution of the Wiñak association.



Map showing the geographical location of the Wiñak association
Source: Google Maps

Wiñak members manage diversified agroforestry systems, including cocoa, guayusa,[i] plantain, cassava and vanilla under the chakra system.[ii] Currently, the association includes 263 Amazonian Kichwa members who own less than 1 ha, 66 percent of which are women. Collectively, they manage 2 133 ha of land (including chakras and natural forests). Wiñak serves more than 600 commercial producers from the Napo, Orellana and Pastaza Provinces.

The need to improve living conditions, provide alternative sources of income and secure livelihoods led Wiñak to seek partnerships with government agencies, international and research organizations, and the private sector. With the support of these alliances and the active participation of its members, Wiñak has successfully obtained Good Agricultural Practices (GAP) and organic production certifications. Wiñak is also a member of the Corporation of Associations of the Amazonian Chakra[iii] implementing the Chakra Seal. This initiative helps agroforestry producers access local markets while raising awareness among Napo consumers about the unique sociocultural dimension of the chakra system.[7] These certifications have enabled small-scale farmers to access markets and improve their production systems while preserving their traditional and ancestral farming practices.

In the past three years, and with the support of the Forest and Farm Facility,[iv] Wiñak has helped members strengthen their production, processing and marketing capacities in the cocoa, plantain and guayusa value chains. Overall, the

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[i] Guayusa (*Ilex guayusa*) is an evergreen tree whose leaves are rich in caffeine and brewed to make a tea consumed in Ecuador.

[ii] The chakra system is an agroforestry system practised by 14 000 Kichwa and Quijos families, based on traditional Indigenous Peoples' knowledge, values and cosmogony. It integrates diverse crops, trees and livestock, while maintaining significant forest area for food and income.

[iii] Five organizations currently make up the Corporation of Amazonian Chakra Associations: Kallari, Wiñak, Tsatsayaku, Alli guayusa and Inti.

[iv] For more information on the Forest and Farm Facility, see www.fao.org/forest-farm-facility/en

Sostenibilidad con
IDENTIDAD
AMAZÓNICA
PODER DEL SACHA URSAY
200g
WIÑAK
CHIFLES DE
PLÁTANO VERDE CON ESPECIAS
PALANDA CHIPS
25

Example from Wiñak product catalogue: spicy plantain crisps.

organization has achieved the following results:

- 230 smallholders (66 percent women and 5 percent young people) trained in organic standards and the internal control system;
- GAP certificate obtained from AGROCALIDAD, the Ecuadorian agency for the protection and improvement of animal and plant health, and food safety;
- implementing the Amazon Chakra Seal (ongoing);
- traceability system designed and developed for the plantain value chain to improve access to new markets;
- three value-added products (including artwork and labelling) developed for plantain (plain, spicy and ripened crisps) and two for cassava (plain and spicy crisps);
- catalogue designed for all agrifood products and agrotourism services offered by Wiñak;
- new agreement signed for the marketing of plantain (fresh and peeled product) with Agroapoyo, a private dried fruit and vegetables company;[v] and
- seeking deforestation-free cocoa certification with support from the WWF (ongoing).

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[v] See https://agroapoyo.com

©Wiñak

Notes

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Achieving impact at scale through an integrated landscape approach

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Indonesia | Banten Community forest landscape

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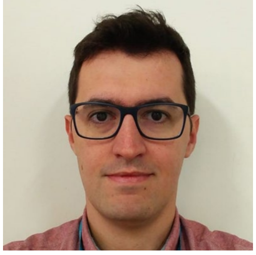

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Unsustainable agricultural expansion and global food systems drive almost 90 percent of deforestation, are a major cause of biodiversity loss, and significantly contribute to climate change through causing 21–37 percent of total greenhouse gas emissions. Moreover, up to 40 percent of land is degraded with declining productivity which directly affects half of humanity and threatens half (USD 44 trillion) of global GDP. Land degradation is particularly severe in drylands, which cover 40 percent of the Earth's landmass and contain 44 percent of the world's agricultural land, supporting over 25 percent of the world's population. At the same time, the world is facing increasing hunger, malnutrition and poverty with up to 828 million people affected in

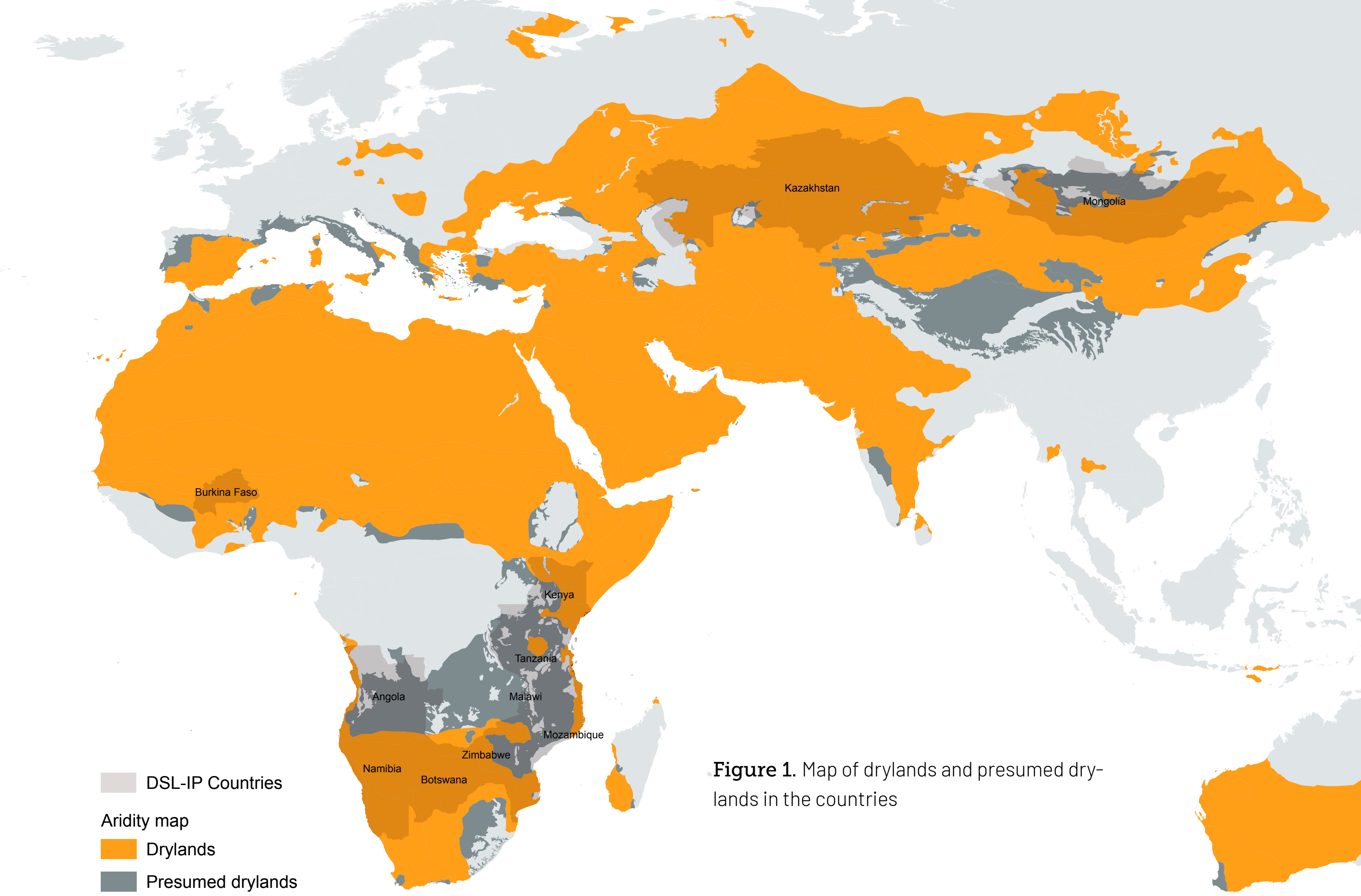

Figure 1. Map of drylands and presumed drylands in the countries

Source: Adapted from Sörensen, L. 2007. A Spatial Analysis Approach to the Global Delineation of Dryland Areas of Relevance to the CBD Programme of Work on Dry and Subhumid Lands. Cambridge, UK, UNEP World Conservation Monitoring Centre. https://docslib.org/doc/2573884/a-spatial-analysis-approach-to-the-global-delineation-of-dryland-areas-of-relevance-to-the-cbd-programme-of-work-on-dry-and-subhumid-lands

2021, and 150 million more since the COVID-19 pandemic, and with food insecurity disproportionally affecting women. This calls for urgent action to accelerate the transformation towards more efficient, inclusive, resilient and sustainable land-use and agrifood systems, for better production, better nutrition, a better environment and a better life leaving no one behind, as stated in FAO's Strategic Framework 2022–2031, while maximizing synergies between forestry and agriculture to address Sustainable Development Goals.

These interconnected, complex challenges can only be overcome with a cross-sectoral, coordinated, inclusive, integrated and programmatic approach to accelerate and reach the desired impact at scale. This is precisely the objective and promise of the recently launched Impact Programme on Dryland Sustainable Landscapes (DSL-IP), led by FAO and financed by the Seventh Global Environment Facility replenishment (GEF-7). The DSL-IP is a multiscale and multipartner cross-cutting, leveraging and catalytic initiative that applies an integrated approach, maximizing synergies to achieve programmatic 1+1=3 results. The USD 104 million IP supports 11 "child" projects in participating countries to apply sustainable and integrated management of production landscapes to achieve land degradation neutrality (LDN) while improving local livelihoods. All participating child projects are located within drylands and presumed drylands as illustrated in the map on this page.

Integration starts at the landscape level

Integrated landscape management (ILM) at scale is at the core of the DSL-IP as an integrated, multidimensional approach embedded in each of the child projects' strategic frameworks. The ILM approach offers the potential for "win-win" synergies between environmental and social considerations, delivering sustainable production systems and livelihoods at the local level alongside global environmental benefits.An inclusive and integrated approach for landscape assessment is the first step to ILM.

The Integrated Landscape Assessment Methodology (ILAM) provided a starting point for comprehensive and cross-cutting baseline data collection and multistakeholder consultation

Sustainable Forest Management Impact Programme on Dryland Sustainable Landscapes visual dentity

processes at the landscape level. The ILAM incorporates tools and methodologies developed with the different FAO technical divisions engaged under the GEF IP umbrella. These were translated into different languages and used to carry out multivariable assessments at various scales in six of the DSL-IP countries in close alignment with the LDN conceptual framework.

The ILAM captured complex issues at landscape level concerning land degradation, value-chain development, social structures, and land-use management systems. It also maximized the engagement and inclusion of national and local stakeholders, and was introduced to country focal points, including government officials, who were trained to carry out the methodology. The ILAM results supported the identification of common management challenges across the six targeted countries and enabled the application of resilience thinking.

The bigger picture

Earth observations and remote sensing products offer an excellent opportunity to quickly assess landscape changes. The ILAM used Trends.Earth and EarthMap as a starting point to gather relevant data to conduct multivariable analyses of land degradation status, fire occurrence and land-cover change in target landscapes.

Data collected from different remote sensing tools was evaluated by national experts to produce comprehensive country reports and maps, which were presented to stakeholders at the landscape level as part of a multistakeholder group (MSG) discussion for further validation.

Bringing people together

As part of a system-wide capacity-strengthening process to enhance inclusiveness, ownership and commitment, as well as to reach desired impact at scale, MSG discussions aligned with good multistakeholder practices were designed and facilitated by LDN and sustainable land-management (SLM) specialists, policy, institution and capacity assessment experts and value-chain consultants, with the support of enumerators, national FAO office representatives and government focal points representing relevant ministries.

The MSGs helped validate the remote sensing data and gather additional baseline information on the landscapes and identify key on-the-ground interventions and value chains to include in the projects, while increasing stakeholder ownership and commitment.

One of the core themes of the MSG consultations was the simplified Land Degradation Assessment (simplified LADA). Developed jointly with FAO's Land and Water Division, the objective was to understand the process of land degradation and management in the six miombo and mopane project

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SHARP enumerator interviewing a farmer

countries at the landscape level. This information contributed to the establishment of an initial baseline and provided evidence for selecting areas of intervention for sustainable forest, grassland and livestock management, agroecological food production and restoration of degraded areas. The remote sensing map and LADA results were combined with household-level farm data to obtain a comprehensive picture of sustainable land and forest management practices in the identified LDN bright and hotspots areas.

Listening to and empowering land users

Household surveys are an important tool to gather valuable data directly from the land users themselves. The DSL-IP worked closely with FAO's Plant Production and Protection Division, Land and Water Division, Statistics Division and Forestry Division to develop a customized version of the Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and

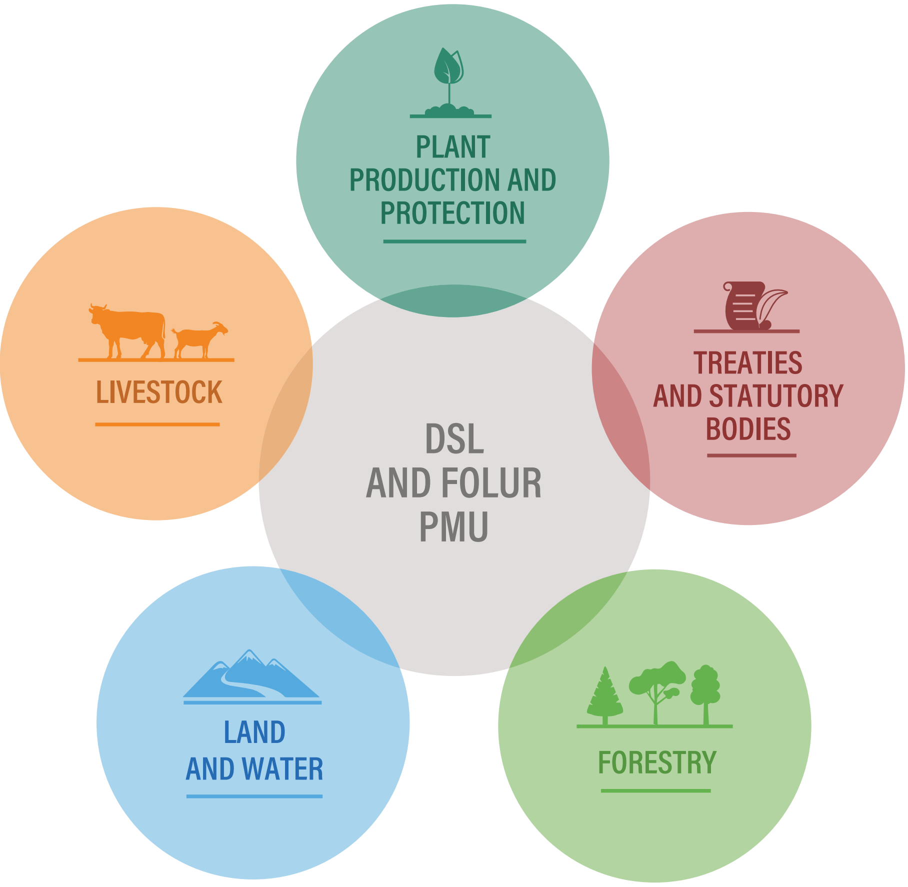
PLANT PRODUCTION AND PROTECTION
LIVESTOCK
TREATIES AND STATUTORY BODIES
DSL AND FOLUR PMU
LAND AND WATER
FORESTRY

Figure 2. FAO's cross-divisional technical support structure for the Dryland Sustainable Landscape Impact Programme

Pastoralists (SHARP) survey, deployed in six miombo and mopane countries. The survey included questions on food security and nutrition, the use of trees and forest products by land users, access to natural resources, as well as the impacts of land degradation at farm level.

The survey found that farmers in all project sites relied heavily on maize as their main staple crop, indicating an opportunity to introduce other cultures and climate-resilient varieties. Lack of access to electricity and reliance on firewood and charcoal extracted from native vegetation for energy needs is also a common challenge across the child projects. Land degradation was mentioned by the land users in all six countries as a key factor leading to reduced productivity. Crop diversification, improved knowledge on sustainable practices and access to water were some of the solutions identified by the farmers themselves. Moreover, as part of the baseline data gathering process, participatory video approaches were applied to document good SLM and sustainable forest management (SFM) practices through the "Making every voice count for adaptive management" (MEV-CAM) approach.[1]

Towards evidence-based integrated land use planning, management and multistakeholder transformative governance at the landscape level

Linkages between land uses and land users are only adequately accounted for when there is a holistic understanding of landscape processes. Working at the interface of forestry, agriculture and communities, the DSL-IP will capture and disseminate best practices, promote impact at scale, foster South-South cooperation and amplify the voices from the ground. The ILAM supports this endeavour as part of a Community of Practice on LDN Assessment for informed Decision Making CoP1. The CoP1 was launched together with the World Overview of Conservation Approaches and Technologies (WOCAT) during the fifteenth Conference of the Parties of the United Nations Convention to Combat Desertification in Abidjan, Côte d'Ivoire. The CoP1 will be complemented by a second Community of Practice on Good SLM Practices in Drylands (CoP2) which will be launched before the end of the year. Through its child projects, the DSL-IP will highlight linkages, promote positive interactions between SLM and SFM, and find solutions to common challenges. After the ILM assessment stage, the DSL-IPwill embrace polycentric, multi-actor transformative governance approaches,[2] incorporating rights-based spatial planning[3] to landscape management. In this way, production trade-offs across land uses and land users in the landscape can be managed to balance environmental and livelihood considerations, and thus contribute to more inclusive and sustainable agrifood systems.

Embracing and operationalizing programmatic complexity

The DSL-IP opens the door for more integrated and cross-divisional work within FAO by bringing several technical divisions together. Aiming at breaking internal and external silos, the DSL-IP cross-divisional work on SLM and SFM business incubation support with focus on selected dryland commodities under the DSL-IP, will be cross-pollinated to other GEF-7 Impact Programmes that FAO and partners are involved in, including the GEF-7 Impact Programme on Food Systems Land Use and Restoration (FOLUR-IP) led by the World Bank as well as the upcoming GEF-8 Impact Programme on Food Security led by FAO.

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Guyana | Rupununi river

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Forests for climate change mitigation and adaptation

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The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Cycle paints a dire picture of the state of global climate change and emphasizes the urgency of mitigation and adaptation action. Due to the burning of fossil fuels, unsustainable land use and other sources, climate change has already contributed to observed changes in weather and climate extremes globally.[1] The globally agreed climate targets of 1.5 °C and 2 °C warming will be exceeded during the twenty-first century unless deep reductions in greenhouse gas emissions occur soon. Every fraction of a degree of global warming makes adaptation more challenging, and in some cases impossible, with risks distributed unevenly both across and within countries.[2]

Forests play a key role in climate action. Halting deforestation and increasing forest cover are cost-effective solutions to mitigate climate change, cutting emissions by over 5 gigatonnes of CO$_2$-equivalent (GtCO$_2$eq) each year – about 11 percent of total annual emissions.[3] Globally, ecosystems at risk of deforestation and degradation, such as peatlands, mangroves, old-growth forests and marshes, contain at least 260 gigatonnes of "irrecoverable carbon".[4] Unless additional measures are taken, an estimated 289 million ha of tropical forests will be lost between 2016 and 2050, resulting in 169 GtCO$_2$eq released into the atmosphere,[5] or four times current annual global CO$_2$ emissions.[6] While protecting these ecosystems, forest and landscape restoration, including through reforestation and afforestation, can build long-term carbon sinks and support "negative emissions" (i.e. removing CO$_2$ from the atmosphere). The global mitigation potential of reforestation and afforestation by 2050 is estimated at 3.9 GtCO$_2$eq per year.[3]

Forests do much more for the climate than carbon storage and sequestration. New scientific evidence illustrates the dramatic global cooling effect of forests through evapotranspiration and their physical structure and chemistry. When taking these biophysical effects into account, it is estimated that tropical forest conservation could provide 50 percent greater global cooling than previously thought. This extra global climate change mitigation is complemented by the ability of forests to regulate rainfall and stabilize local climate, helping minimize extreme weather and making forests essential for climate change adaptation and resilience.[7] Future agricultural productivity in the tropics, and beyond, depends on the climate regulatory functions that forests provide.[8] Trees in cities make them more liveable by keeping temperatures in check.[9] Protected, restored and sustainably managed forests also provide a host of biodiversity benefits and other ecosystem services that help enhance the adaptive capacity and resilience of people and ecosystems.[10]

To reinforce forest solutions to climate change, there is a need to address several key issues. These include: understanding and tackling drivers of deforestation and forest degradation; enhancing the role of forests in national climate policies; mobilizing finance for mitigation and adaptation; recognizing, supporting and rewarding Indigenous Peoples and rural communities who protect and sustainably manage forests; and promoting transformational adaptation.

The twenty-seventh session of the Conference of the Parties (COP27) to the United Nations Framework Convention on Climate Change (UNFCCC) in November 2022 provided an important opportunity to unlock finance that not only helps countries curb emissions and adapt to climate impacts, but also addresses the economic and cultural losses and damages that cannot be avoided, including of forests and the people who depend on them.

By strengthening the role of forests in global climate policy, developing countries' capacities for forest-based climate action and scaling up action on the ground, forest solutions can help tackle the climate crisis.

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Argentina | Buenos Aires, one of the 138 recognized "Tree Cities of the world"

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Tree Cities of the World

Growing a global network

As cities around the globe continue to expand their commitment to more trees, Tree Cities of the World is a scheme offering recognition for this work. Both Campo Grande, Brazil, and Mumbai, India, were recognized as Tree Cities of the World in 2021.

Simone Borelli, Urban Forestry Officer, FAO

Alana Tucker, Programme Manager, Arbor Day Foundation

The Tree Cities of the World programme, launched in 2018 at the World Forum on Urban Forests in Mantova, Italy, provides a foundation for municipal governments to earn recognition for and learn from urban forestry efforts and programmes around the globe. FAO and the Arbor Day Foundation modelled the programme on Tree City USA, which has been the backbone of urban forestry in the United States of America since its inception in 1976.

Cities must meet five core standards to earn annual Tree Cities of the World recognition. First, cities should have a department or board responsible for trees. They should also have policies or laws guiding tree care. Then, the cities should keep an inventory or assessment of urban trees. This is critical to understanding how to plan for investments or budgeting, the next standard. And, finally, cities should celebrate their trees each year.

In 2021, 139 cities from 21 countries were recognized as Tree Cities of the World. The authors interviewed Gisseli Giraldelli, Biologist and Superintendent of Surveillance and Environmental Management, from Campo Grande, Brazil and Jeetendra Pardeshi, Superintendent of Gardens and Tree Officer in Mumbai, India, to learn more about their tree cities. Below are some of their important insights.

Alan Tucker (AT) and Simone Borelli (SB): What is the value of being part of the Tree Cities of the World network?

Gisseli Giraldelli (GG): This is a very important achievement for Campo Grande and our city's community. Campo Grande's primary objective is to be a biophilic city that values biodiversity. In this regard, being part of the network helps us to keep motivated and work relentlessly to maintain our status. The network provides us with an opportunity to showcase all the benefits we get from these actions and, at the same time, to learn from what other cities in the network are doing.

AT and SB: What are your objectives for your city's trees?

Jeetendra Pardeshi (JP): We aim to keep all trees healthy and green to make the city a beautiful place in which to live happily. We implement all the best tree care practices using advanced equipment and scientific methods. We plant and grow the highest number of trees possible to reduce temperature, pollution and flooding, thereby enhancing sustainable development. We also are committed to carefully maintaining heritage trees. Finally, through the city's Climate Action Plan, our goal is to have net-zero emissions by 2050, and tree planting efforts will play a key role.

AT and SB: What is the "tree culture" in your city? What do trees mean to your city?

JP: Trees are the soul and the green lungs of Mumbai. They are the wealth and health of the city. Lastly, trees represent the city's religious heritage. Culturally, citizens celebrate the traditional Vat Purnima Festival by planting and worshipping the holy banyan trees. The pipal tree (*Ficus religiosa*) under which the Buddha reached enlightenment has traditional sacred status for citizens. The udumbara tree (*Ficus racemosa*) and neem tree (*Azadirachta indica*) are also auspicious, and sacred for some citizens.

AT and SB: What advice would you give other cities that are not currently recognized?

GG: I recommend that they try to meet the requirements and apply to become part of the Tree Cities of the World network. We truly believe that with more recognized tree cities, the world will be a better place for present and future generations. We need more trees, and we need more forested cities!

As both Campo Grande and Mumbai continue to focus on the future of their urban forests, each understands the importance of a strong and supportive global network focused on sharing ideas and learning. The Tree Cities of the World programme continues to grow and serve as the network for these two cities and many more around the globe.

Save the date

Join us in Washington, DC on 16–20 October 2023 for the Second World Forum on Urban Forests – Greener, healthier and happier cities for all. More information will follow soon.

World Forum on
Urban Forests
Washington DC, 2023

2nd
World Forum on
Urban Forests

https://www.worldforumonurbanforests.org/

Kenya | Oljoro-Ojok Two workers smoothen and sand down some pieces of furniture at Francis Ndewga's Furniture shop

© FAO/Luis Tato

Building a carbon-neutral circular bioeconomy with sustainable forest products

Fulfilling the ambitions of the Paris Agreement requires rapidly decarbonizing emissions-intensive industrial value chains. This can be facilitated by developing the forest-based circular bioeconomy – an economy that promotes the consumption of forest products produced from sustainably harvested forest resources according to the principles of circularity and cascading use.[1] Transitioning to a forest-based circular bioeconomy can potentially sequester as much as 441 million tonnes of CO_2-equivalent ($MtCO_2eq$) eq per year by 2030,[2] which is more than the total CO_2 emissions from Türkiye in 2020.[3] Transitioning to a forest-based circular bioeconomy can help decarbonize a wide range of sectors, in particular, the construction and energy sectors.

The buildings and construction sector contributed almost 40 percent of energy- and process-related greenhouse gas (GHG) emissions in 2018.[4] "Mass timber" and novel wood-frame multistorey construction practices can substantially reduce this impact by substituting fossil fuel-based construction materials such as concrete, while also storing carbon during building life cycles.[5] Wood has a median substitution factor of 0.9, i.e. for every 1 kg of carbon in wood displacing a non-wood building material, an average emission reduction of about 0.9 kg of carbon could be achieved.[6] Despite the wide variability of the substitution factors reported in the literature, there is much evidence to suggest that buildings made of sustainably harvested wood are better for the environment than those made with concrete. Substituting concrete by wood could reduce the energy consumed by construction processes by 40 percent, while GHG emissions could be reduced by 35 percent.[7]

Similarly, wood-based bioenergy can help decarbonize the energy sector, the sector emitting the most GHGs. Currently, only 5.8 percent of global energy needs are met through woodfuel (the largest source of renewable energy ahead of solar, wind and hydropower[8]). For the global energy sector to reach net-zero emissions by 2050, the International Energy Agency (IEA)[9] foresees the need for an increase in modern bioenergy use by around 60 percent between 2020 and 2050. Under this scenario, the land area for dedicated biomass plantations would need to increase from 330 million hectares (ha) to 410 million ha, and wood residues and waste from sustainably produced wood would play an increased role in modern bioenergy production.[i] The substitution factor of modern wood-based bioenergy can be as high as 1 when wood residues and waste displace carbon-intensive coal (but less than 1 for gas or oil).[10]

Favourable policies are needed at national, regional and international levels, including within the private sector, to fully harness the potential of sustainable forest products in building a carbon-neutral circular bioeconomy and to achieve the Sustainable Development Goals (SDGs). In particular, policies are needed to facilitate the following outcomes:

- Large-scale investments in the sustainable production and consumption of forest-based materials in emissions-intensive sectors, ensuring the availability of key forest resources such as construction materials, fibres and woodfuels to support a growing bioeconomy.
- Increased investments in research and development, fostering innovation for more efficient cascading use, and improved reduction, reuse, recycling and residual management (the 4Rs) of forest resources, to reduce the material footprint through efficiency gains along the value chains.
- Increased participation of small landowners and local communities in forest-sector value chains to improve local livelihoods of forest-proximate people.
- Explicit recognition of the need to substitute non-renewable materials with renewable materials in strategies to achieve nationally determined contributions (NDCs) under the Paris Agreement, specifically the carbon sink, storage and substitution potential of renewable forest products.
- Generation of accurate data to underpin policy and investment decisions with a focus on the assessment of supply and demand dynamics to guide sustainable expansion of the bioeconomy.
- Incentives for regulatory compliance and adoption of sustainable practices including certification and product traceability; and disincentives for unsustainable practices.

Three-quarters of current total material demand is met through non-renewable natural resources.[11] Changing unsustainable consumption patterns is necessary to avert a climate catastrophe. Transitioning to a forest-based circular bioeconomy can be a significant step in that direction.

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[i] This is the subject of a FAO study conducted with Laval University, Canada (forthcoming publication).

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Transforming agrifood systems with and for forests

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Zimbabwe | Men and women are seen at a maize grinding facility in ward 4 of the Mucheni area

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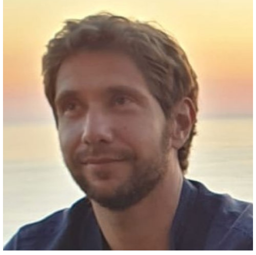

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Since 2021, FAO uses the concept of agrifood system,[1] which covers the journey of food from farm to table – including when it is grown, fished, harvested, processed, packaged, transported, distributed, traded, bought, prepared, eaten and disposed of. It also encompasses non-food products that also support livelihoods, and all of the people as well as the activities, investments and choices that play a part in getting us these food and agricultural products.

Linkages between agrifood systems and forests are therefore multiple. Forests are direct providers of food, wood and fibres, as well as the ecosystems used for food production. They also offer ecosystem services that directly support the sustainability of food systems, such as pollination, soil protection and the regulation of the water cycle and local climates. Finally, when agrifood systems are not environmentally sustainable, this can have negative impacts on forests, causing deforestation, forest degradation and forest fires.

Transforming agrifood systems

Globally, current agrifood systems are not sustainable. Agricultural production more than tripled between 1960 and 2015, owing in part to productivity-enhancing Green Revolution technologies but also to a significant expansion in the use of land, water and other natural resources for agricultural purposes.[2] In some places, excessive reliance on monocropping, fertilizers and pesticides resulted in unintended environmental impacts (e.g. soil degradation, biodiversity loss, water pollution, pest outbreaks and greenhouse gas (GHG) emissions).[3] Moreover, one-third of food produced for human consumption globally is lost or wasted.[4] In 2019, GHG emissions from global agrifood systems represented 31 percent of total anthropogenic emissions,[5] approximately 23 percent of which (from 2007 to 2016) derived from agriculture, forestry and other land uses, notably through deforestation.[6]

Moreover, current agrifood systems still fail to ensure sufficient, safe and healthy food for all. Transforming agrifood systems towards more sustainability is paramount for reaching the Sustainable Development Goals. Considering the role of forests in this transformation will be a key success factor.

Transforming agrifood systems for forests

The main trade-off between agriculture and forests relates to competition for land. Since 1990, an estimated 420 million hectares (ha) of forest has been lost through deforestation.[7] The findings from the FAO Global Remote Sensing Survey[8] revealed that, from 2000 to 2018, agricultural expansion drove almost 90 percent of global deforestation (52.3 percent due to conversion into cropland, 37.5 percent to livestock grazing). To improve the sustainability of agrifood systems, forest conversion into agricultural land must thus be reduced.

Multiple commitments and actions go in that direction. In 2008, the countries party to the United Nations Framework Convention

One Health working definition by the One Health High-Level Expert Panel

The FAO-EU Forest Law Enforcement, Governance and Trade (FLEGT) Programme has supported tropical timber-producing countries in enhancing law enforcement and good governance in the forest sector through demand-side measures to reduce illegal timber production and trade, and thus limit deforestation.[a]

The countries develop and implement assurance systems to provide evidence that wood products have been managed, processed and traded without having contravened environmental, economic or social requirements reflected in the national legal framework, and to trace individual logs, or batches of timber, from a legal place of harvest through the supply chain to domestic or international retail.

The Programme's experience has shown that, regardless of the commodity, the development and implementation of robust and inclusive nationally appropriate assurance systems, and complementary traceability and monitoring systems, provide opportunities for clarifying legal frameworks, increasing transparency and strengthening the role of civil society and private sector associations in governance processes. A high level of political will and support, a solid legal and regulatory framework, and enough financial support, including from national governments and international organizations, are among the key ingredients for the successful implementation of these systems.[b] Third-party verification or certification of operators or third-party audits of the entire system by independent and accredited bodies, improve transparency and add strength to assurance systems, particularly for higher risk sources and segments of the supply chain.

Independent forest monitoring (IFM) integrated into assurance systems provides additional oversight and further enhances transparency and forest governance. The involvement of local forest-dependent communities and Indigenous Peoples in IFM capitalizes on their unique knowledge and proximity to forest resources.

Alongside systems development, the Programme supported complementary actions to ensure that the new requirements did not inadvertently prevent smaller and community-based producers, processors and traders from fully participating in formal supply chains. These have included the establishment of adequate support structures for micro, small and medium-sized enterprises, long-term mentoring for legal compliance and business skills development. These efforts have allowed smaller producers to participate in previously inaccessible markets.

Notes:

a. Examples of demand-side measures

b. FAO & WRI. 2022. Timber traceability – A management tool for governments: case studies from Latin America. Rome, FAO. https://doi.org/10.4060/cb8909en on Climate Change designed a specific framework to guide activities in the forest sector that reduce emissions from deforestation and forest degradation (REDD+). Over the last decade, both public and private actors have increasingly engaged either in jurisdictional, landscape-based approaches or in sectoral, supply chain-based initiatives, to halt deforestation. Their efforts to develop new models of land use and agricultural production illustrate the need to break silos, defining what can be called "forest-positive agriculture".

Transforming agrifood systems with forests

In turn, many options exist for "forest-positive agriculture". For instance, agroforestry includes a wide range of land-use systems where trees (and other woody perennials) are managed in conjunction with agricultural crops or livestock, or both.[9] Agroforestry systems can help increase biodiversity, conserve soils, enhance agricultural yields and provide more resilient livelihoods for men and women farmers and forest dwellers.[10, 11] Similarly, agrosilvopastoral systems, where livestock, and sometimes crop, management is integrated with trees or shrubs within the same landscape, can be particularly important for food security and nutrition, livelihoods and resilience in drylands, where suitable grazing management and husbandry practices can help prevent degradation and desertification.[12–14]

Indigenous Peoples' food and knowledge systems, including the use of forest foods, can provide examples of sustainable agrifood systems that are climate resilient, nutritious and respectful of nature.

While regulatory frameworks are under development in major consumer countries to limit their contribution to deforestation through importing agricultural commodities, lessons learned from the timber sector will be extremely valuable to accelerate progress in producer countries towards meeting these new market demands.

In conclusion, as expressed by FAO Director-General Qu Dongyu during an event for the joint FAO–French presidency of the European Union Council in March 2022:

We can no longer work in silos. Agrifood systems transformation and forest protection, restoration and management must go hand in hand. We must address trade-offs and maximize synergies between agrifood systems and forests to truly meet the challenge of producing sufficient, safe and healthy food for a growing population, while conserving our natural resources and biodiversity.

Notes

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Interview with Her Royal Highness Princess Basma bint Ali of Jordan

g a Green, Healthy and
Korea Forest Service
XV WORLD FORESTRY CONGRESS

Her Royal Highness Princess Basma bint Ali of Jordan. The way forward – enhancing partnerships for sustainable forest management

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Her Royal Highness Princess Basma bint Ali of Jordan has been actively working on biodiversity conservation in Jordan for over 30 years. In 2021, Princess Basma bint Ali was appointed Chair of the Board of Trustees of the Hashemite Fund for Development of Jordan Badia. Her focus is to steer socioeconomic capacity building through local community-based sustainable development focused on green growth.

Princess Basma bint Ali is FAO Goodwill Ambassador for the Near East and North Africa and Ambassador for the Black Jaguar Foundation, which is working on restoring the longest biodiversity corridor in South America. In one of her first official engagements as FAO Goodwill Ambassador, Princess Basma bint Ali participated at a high-level session of the XV World Forestry Congress on 2 May 2022 at the Coex Convention and Exhibition Center in Seoul, Republic of Korea.

Princess Basma has also founded several non-profit, non-governmental environmental entities. She founded the Royal Botanic Garden of Jordan, in 2008, to conserve the native flora of the country, and co-founded the Royal Marine Conservation Society of Jordan in 1995 to protect the national coral reef, among other entities.

Princess Basma serves on several national and international boards of environmental entities, includ-

Jordan |. FAO Director-General Qu Dongyu on tour with Her Royal Highness Princess Basma bint Ali, FAO Goodwill Ambassador

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ing as Chair of the National Biodiversity Committee of Jordan (Ministry of Environment).

Princess Basma has been awarded many medals for her work, the last of which is the Order of the State Centennial in January 2022, as well as the Henry Shaw Medal by the Missouri Botanical Garden for her pioneering work in raising awareness among Jordanians about the importance of conserving native plants and protecting the environment. In 2002, the United Nations Environmental Programme (UNEP) elected her as a laureate in the Global 500 Roll of Honour for Environmental Achievements. In 1998, she became the first Arab woman to receive the title of Hero for the Planet from *Time Magazine*.

Princess Basma earlier served for 12 years in the Jordanian Armed Forces, reaching the rank of major. She was awarded the Order of Merit Decoration in 1998 and the King Hussein Gold Medal for Excellence in 1995.

***Unasylva*: What is in your opinion the key factor in countering the global trends we are currently witnessing concerning climate change?**

Her Royal Highness Princess Basma bint Ali of Jordan: Unity in diversity is the key factor here. What I mean by this concept is the unity of all to work towards our common goal, which is a thriving Earth. Because as we clearly have witnessed during the COVID-19 pandemic, no one country can close its borders and claim they will thrive alone. We are connected whether we like it or not, regardless of our geographic location. The extremes are getting more extreme, and every single living being on Earth is paying the price in one way or another. However, I must mention that the pandemic also taught us that the Earth is very resilient and given the chance, it can easily overcome our mismanagement of our resources. This encompasses the most influential stakeholder, which is the consumer. Every time consumers choose something, it directly influences the businesses that provide that product or service, and it is through their choice that trends are developed. So the consumers in all their diversity can bring about change, which brings me to the key point that what should unite us, is our humanity, and the diversity component includes approaches, not just stakeholders. I firmly believe that we should diversify our tactics to ensure success. There is no one solution, other than tapping in to our humanity and letting go of our all-encompassing greed. We should thus acknowledge this fact and focus more on what unites us rather than what divides us.

***Unasylva*: Can you describe an experience where local community involvement was a key factor in achieving a goal or a project, and why was this a fundamental component of its success?**

Her Royal Highness Princess Basma bint Ali of Jordan: Yes, a very successful programme of the Royal Botanic Garden (RBG) of Jordan, is our Community-Based Rangeland Rehabilitation (CBRR) programme, in which the RBG partnered with the neighbouring herders, on implementing sustainable herding management techniques and practices based on a traditional Hima herding system. The RBG published many scientific papers from this programme, which was then adopted by the International Union for Conservation of Nature (IUCN). Why would a botanic garden delve into herding and overgrazing you may ask, well Jordan was suffering from overgrazing, which was decimating our biodiversity, and this includes soil health, plant diversity and the increasing risk of desertification. Furthermore, the herding community was marginalized and suffered from a high incidence of illness. We started with five herding families and over the past seven or eight years all of the herding community has voluntarily come to be part of this programme, which I think now includes over 54 families. The good news is that biodiversity and biomass in the target areas have increased by 30 percent, while herd health and product quality have also increased. This has resulted in a decrease of illness occurrence and increase in income for the herding families, so much so that they were then able to send their children to school. So the CBRR programme enabled the RBG to achieve Sustainable Development Goals 1, 2, 3, 4, 6, 8, 12, 13, 15 and 17. The reason it is so successful is that the community began experiencing the benefits of the programme from very early on, and they then became its most fervent ambassadors of the programme, which encouraged the remaining community members to join. This programme has been replicated in other parts of Jordan and even in Egypt.

***Unasylva*: How important are regional-level involvement and local activities and initiatives for not only creating awareness and visibility, but also for sparking action for greater sustainability of forests and resources, as opposed to restoration, for example?**

Her Royal Highness Princess Basma bint Ali of Jordan: First, we cannot deny how connected our ecosystems are, and our landscapes do not acknowledge political borders. Therefore, what we face as a region is one and the same, with slightly different nuances. But if we take the CBRR programme as an example, it shows tangibly how one small initiative has grown to become an adopted scheme for sustainable landscape management on the international platform of IUCN, while being replicated on a regional level in Egypt, and soon

Jordan | FAO Director-General Qu Dongyu toured with Her Royal Highness Princess Basma bint Ali, FAO Goodwill Ambassador

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elsewhere. Having said that, it also does promote restoration. As I mentioned earlier, we need to have a multipronged approach to ensure success.

***Unasylva*: What are the three key issues related to forests and rangelands for achieving a more sustainable and green future?**

Her Royal Highness Princess Basma bint Ali of Jordan: First, the governance mechanism of these areas must be clearly defined, and a major player in the governance should be the rural communities, including Indigenous Peoples, who live there, whereby the management becomes focused on sustainability while enhancing livelihoods. This brings me to the second key issue and that is to develop value chains based on forests and rangelands, which augment restoration of these ecosystems, as in the CBRR programme. The last and extremely important factor is fostering strong partnerships between technically strong entities, local communities and governments. These partnerships should work as one organism towards achieving a sustainable future. We need to be able to study the situation and then develop management strategies that are science based, then we need to be able to monitor our success – all the while asking the fundamental questions: Is it working? Is the environment responding positively? Do we need to adjust? It is a very dynamic process in which we learn as we go. Therefore, monitoring and recalibrating are a step towards ensuring long-term success.

***Unasylva*: What are some of the most important challenges that need to be addressed globally at the moment and how should they be tackled in your opinion?**

Her Royal Highness Princess Basma bint Ali of Jordan: On a global level, I think not enough sincere commitment has been shown by governments to genuinely combat climate change. Nor has there been enough financial resources earmarked for this. I think we need to recalibrate how we evaluate climate change, and the terms in which we measure the impacts. The most recent example is Pakistan and the unprecedented floods that have occurred. According to the United Nations Children's Fund (UNICEF), it is estimated that 33 million people have been affected, of which 17 million are children, and among them, 3.4 million are in critical need of assistance. Yet even though the floods are receding, what is left in the wake is the increased threat of waterborne disease and malnutrition. The vital infrastructure has been wrecked. We are talking about public health facilities, water systems, roads, which are the life line for providing assistance, and schools. So I ask, how can you measure the destruction without including the impact on the mental health of those who survived?

***Unasylva*: As FAO Goodwill Ambassador, what are the issues that you would like to focus on in years to come?**

Her Royal Highness Princess Basma bint Ali of Jordan: I have always been an optimist. Thus, I believe we should highlight how simple it is to turn the tide and to not leave anyone behind. We know what needs to be done, we have those who can do it, as seen by so many examples across the globe. All that is left is to actually commit full-heartedly to the financial mechanisms to get it done, and spark the candle of hope.

Fostering effective action towards a better environment throughout the United Nations Decade on Ecosystem Restoration

A Kenyan pastoralist provides water for her cattle at a water point in the Mukogodo Forest

©FAO/Luis Tato

Christophe Besacier, Senior Forestry Officer, Forest and Landscape Restoration Coordinator, FAO

Nelly Bourlion, International Consultant for the FLRM, FAO

Andrea Romero Montoya, Junior Consultant to support the United Nations Decade Taskforce on Best Practices for ecosystem restoration, FAO

Giorgio Millesimi, Junior Consultant for the FLRM, FAO

The United Nations Decade on Ecosystem Restoration 2021–2030 (hereafter "UN Decade") was proclaimed by the United Nations General Assembly to halt, prevent and reverse the degradation of all ecosystems, landscapes and seascapes. Ecosystem restoration encompasses a wide continuum of activities, such as reforestation, rewetting peatlands and coral rehabilitation, which contribute to protecting healthy ecosystems and repairing degraded ones. Although 115 countries have already pledged to restore 1 billion hectares (ha), an area larger than China – under the Bonn Challenge and the Rio Conventions,[1] little is known about the effectiveness of restoration and progress towards goals. Moreover, restoration success stories and lessons learned have not been shared widely. Therefore, planning, implementing and monitoring effective restoration actions on the ground and reporting on them are needed to meaningfully achieve restoration ambitions.

Effective ecosystem restoration aims to achieve and sustain the highest level of recovery possible for biodiversity, ecosystem health and integrity, ecosystem goods and services, climate change mitigation, and human health and well-being at local, national and global scales. To maximize the likelihood of achieving this, UN Decade partners published ten principles for ecosystem restoration. Since their publication in September 2021, these principles have been widely used by the restoration community to guide and assess current and future restoration efforts, for example, for evaluating the 73 submissions to the UN Decade's first call for World Restoration Flagships. Currently, the FAO-led Taskforce on Best Priactices, which was established to support capacity development and knowledge dissemination efforts, the Society for Ecological Restoration, and the Commission on Ecosystem Management of the International Union for Conservation of Nature are leading the development of standards of practice for ecosystem restoration to provide guidance on the application of the ten principles.

Since 2014, FAO's Forest and Landscape Restoration Mechanism (FLRM) has been supporting the planning, implementation and monitoring of restoration projects, programmes and related activities in 20 FAO Member Nations, in close collaboration with key partners. Drawing on eight years of experience, the FLRM plays a key role in the implementation of the UN Decade. The main achievements, key success factors and lessons learned of some of the current projects are summarized as follows:

In the mountainous South Kivu Province in the Democratic Republic of the Congo, the FLRM is helping stakeholders design and implement restoration interventions that meet the needs of local communities and landscapes. One way to do this is by supporting the development of a Provincial Forest and Landscape Restoration Strategy. This strategy establishes priority sites and approaches for restoration, including assisted natural regeneration, agroforestry and watershed protection through plantings to reduce soil erosion and other measures.

In the Kampong Thom, Siem Reap and Preah Vihear regions of Cambodia, the FLRM and the Regional Community Forestry Training Center for Asia and the Pacific are equipping forest communities with the technical capacity and funds needed to address forest degradation and promote restoration activities, in conjunction with the Cambodian Government's community forestry initiative.

In the Mukogodo region in central Kenya, the restoration of arid and semi-arid lands project under The Restoration Initiative (TRI) is helping local communities develop a better approach for managing and restoring this fragile ecosystem, by strengthening the local community forest association responsible for managing the forest reserve in partnership with the Kenya Forest Service.

At the foot of the Himalayan Mountains in northern Pakistan, the FLRM works with local communities and the Pakistan Forest Department to help bring stakeholders together and create better policies and institutions for managing the resources from the chilgoza pine forests.

In Burkina Faso, populations depend heavily on the exploitation of natural resources: extensive pastoralism, rainfed food crops, non-timber forest products for food and medicine, and fuelwood for cooking. These natural resources are subject to strong biophysical pressures such as scarce and erratic rainfall, high temperatures, high aridity, and often poor and easily degradable soils. Local restoration actions are implemented in an innovative and decentralized manner with rural communes by: reinforcing local capacities in planning and logistics; financing, monitoring and evaluating forest and landscape restoration and sustainable land management actions; and developing income-generating activities with the opening of dedicated municipal councils on these two themes.

In the Niger, small grants are provided to cooperatives, for example to a women's cooperative producing and transforming moringa. The small grant is used to provide modern and efficient processing and production equipment to meet the needs of consumers. The investments are part of an important agroecological practice that contributes to climate change adaptation and increases the resilience of communities.

In addition to its extensive work in the field, the FLRM produces frequent online webinars and training to share knowledge and best practices among the different programmes and countries supporting the ambitious restoration goals of the UN Decade across a variety of landscapes and using a variety of approaches. Only by working together and regularly sharing knowledge and lessons learned can the vision of the UN Decade be achieved.

Notes

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Countries' climate action needs focus on climate-smart forestry as much as on halting deforestation

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Ross Hampton,
Chair of ACSFI and
CEO of the Australian
Forest Products
Association

When Prime Minister Boris Johnson announced at the twenty-sixth Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow the pledge to end deforestation by 2030,[1] he received rousing applause. One hundred and forty-five nations have now signed up to this laudable goal. For good reason. FAO's *The State of the World's Forests 2022* [2] has showed that, while deforestation has slowed, it is continuing at a frightening rate. In 2021, an area the size of Scotland and Wales was deforested.

Forests are absolutely key to climate ambition. As they spread their leaves and surge down and up with roots and branches, they collectively absorb enormous amounts of carbon.

Trees really are the ultimate carbon sink.

But as any primary school science student can tell us, the carbon those trees are storing isn't suddenly released when a tree is harvested, like air escaping from a balloon! The carbon remains locked up in the things made from that tree, like our desks, walls, house frames, floors, furniture and musical instruments. Studies have shown that it is also retained in paper and packaging far longer than many expect.[3]

So yes, forests are vital in the drive to "keep 1.5 °C alive," but so is forestry. This should be clear if we just pause and look at the changes rapidly taking place around us.

All over the world, governments and businesses are implementing programmes to accelerate the uptake of forestry materials. Mass timber buildings now dot skylines. Cardboard packaging fills the shelves. Airlines are moving into biofuels. Clothes are plant based. The age of the bioeconomy is arriving – and fast.

The conversations about forests seem happy to dwell on the many important values associated with these magnificent places wherever they are on the planet. Things like climate of course, but also Indigenous Peoples' livelihoods, biodiversity outcomes, water and recreation.

What is too often missing from these lists though are forest products, and it is vital we add them to the "must haves". Why is this? Because demand for climate-friendly forest products is rapidly increasing, but sustainable supplies aren't keeping up.

There are numerous forecasts of this supply and demand challenge. The World Bank and Indufor projected a quadrupling of fibre demand by 2050.[4] According to Gresham House, timber consumption, which traditionally increases by about 1.1 percent a year, is going to surge to 3.1 percent a year as demand piles on demand.[5] FAO's recent *Global Forest Sector Outlook 2050*[6] predicts a 37 percent increase in demand for forest products and says that at an absolute minimum, 33 million hectares (ha) of new planted forests will be required.

And, if those demand forecasts were not sobering enough, the size of the task will be compounded by policies in some places that will work against even maintaining current supply.

A recent analysis of the European Union (EU) Biodiversity Strategy for 2030, for example, has found that the minimum impact on sustainable forestry will be a drop of 9 percent in EU timber on the shelves in the next eight years. The worst-case scenario is a staggering 48 percent decline! The report goes on to make the very challenging point that, while this reduction in Europe might be driven by a desire to enhance biodiversity, it may perversely lead to biodiversity losses in nations where some of the lacking timber will inevitably come from.[7]

Members of FAO's Advisory Committee on Sustainable-Forest-Based Industries (ACSFI) and a great many other forest industry participants promoted this sustainable supply conversation at the recent twenty-seventh Conference of the Parties (COP27) to the UNFCCC. The ministerial call[8] issued at the XV World Forestry Congress in Seoul in May 2022 by Austria, Cameroon, the Congo, Gabon, Japan, Kenya, Peru and the Republic of Korea pleaded with the world to urgently scale up sustainable production pathways. We need to add more nations to that list.

Please allow me to say emphatically that, if we are to make any progress in this conversation, we must also avoid getting bogged down in the difference between what is a "good" and "bad" production tree. This is highly dependent on context, local communities, landscape-wide biodiversity goals and a host of other factors. It is not a "one-size-fits-all" prescription. In some places, it will mean more agroforestry. In others, there will be mixed plantings of monocultures and broadleaves. Some nations will practice multigeneration harvest and regeneration of native species. Some places will do natural forestry and others use exotics in plantations. We need all options and possibilities if we are to increase supply to meet climate targets.

This is why deforestation pledges – in the absence of a corresponding conversation about sustainable supply – seem to me to be half done. The Glasgow declaration put forests on a stage. But the stage now needs to be built of climate-smart timber.

Notes

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The International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment

A renewed commission, a world of opportunities

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Fast-growing trees (FGTs) are trees with a mean annual increment of at least 10 cubic metres per hectare (m3/ha),[1] although the meaning of "fast" varies widely depending on species traits, climate, soil and other biotic and abiotic conditions, as well as cultural practices.[2] Warmer climates often facilitate the cultivation and rapid growth of many FGT species, while only a few of them are suitable for cooler and colder climates.[3] Fast-growing trees are cultivated in traditional silvicultural systems, short-rotation coppice systems and agroforestry systems.[4] They are found throughout the landscape: in our forests, in rural areas, and in and around our cities.

Fast-growing trees are widely used throughout the world for the production of timber, pulp, biomass for bioenergy and other forest products, and recently gained recognition for the multiple ecosystem services they can provide, including erosion control, soil fallow, carbon sequestration and freshwater flow protection.[5] They will be critical in the transition towards a carbon-neutral economy as they provide low-carbon renewable products, which can be substituted for carbon-intensive products.[6]

The rapid growth of the forest industry and the need for increased productivity created an enabling environment for the development and implementation of science and technology associated with FGTs and their applications in the post-war period. Long-term investments resulted in improved genetic material and management methods for FGTs,[7] which, in turn increased the productivity and profitability of FGT plantations. Covering only 3 percent of the global forest area, forest plantations produced about 33 percent of the world's total roundwood in 2012.[8] With the consumption of primary processed wood products expected to increase by 37 percent by 2050 (compared to an increase of only 28 percent over the past 30 years, despite a lower expected population growth rate),[9] FGTs will play a key role in fulfilling the demand for wood products in the context of an increasing global population.

Plantations of FGTs can serve as tools for addressing many environmental problems at the local scale, (e.g. phytoremediation) as well as the global scale (e.g. countering the enhanced greenhouse effect), and the widespread cultivation of FGTs has already generated many lessons learned on the management of environmental as well as social impacts. Fostering the sustainable management of FGTs to meet the needs of sustainable urban and rural landscapes is the mission of the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment (IPC),[i] which seeks to contribute to the 2030 Agenda and the Global Forest Goals, the United Nations Decade for Family Farming and the United Nations Decade on Ecosystem Restoration,[10] as well as the Paris Agreement. Fast-growing trees are part of large, globalized value chains as much as they matter to smallholders and family farmers for their livelihoods.

The IPC is one of the oldest statutory bodies of FAO. It was founded in 1947 in the aftermath of the war, when growing poplar and willow was considered a priority for rebuilding rural and industrial economies. Up to 2019, the IPC worked with poplar, aspen, cottonwood and willow. It has contributed, for example, to the establishment of outgrower schemes on more than 450 000 ha in India, and to the Chinese "Great Green Wall", also known as the Three-North Shelterbelt Programme.

In 2019, the mandate of the IPC was expanded to all FGT species that sustain people and the environment. In alignment with this mandate, the IPC now has an even broader geographical, biological and technical scope, as recognized in its recently adopted strategy for 2022–2032.[10]

The IPC functions both as a capacity development network. Through its working parties, it facilitates knowledge and information exchange, fosters the identification of promising innovations and enhances the uptake of best practices in the management of FGTs for multiple purposes. The IPC also aims to translate scientific evidence into policy recommendations.

To date, the IPC counts 38 member countries on five continents. Other countries, in particular tropical countries engaged in ecosystem restoration and development of sustainable wood value chains, are welcome to apply for membership of the IPC and participate in its mission to improve the use of FGTs for multiple benefits.

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[i] For more information on the IPC, visit: www.fao.org/ipc/en/ or send an email to IPC-Secretariat@fao.org.

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Strength in diversity

Indigenous Peoples' contribution to healthy, sustainable and risk-resilient diets

Guyana, South Pakaraimas, Karasabai | A quartered armadillo hunted the night before and shared among 4 hunters is prepared in a traditional clay pot with vegetables.

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Marta Gruca,
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Indigenous communities throughout the world have managed forests and associated landscapes to sustain their livelihoods and cultures from time immemorial.[1] Even 12 000 years ago, nearly three-quarters of the Earth's land was inhabited and therefore shaped by human societies, including more than 95 percent of temperate and 90 percent of tropical woodlands.[2] The current global pattern of key biodiversity areas is strongly associated with those past patterns of land use, including on Indigenous Peoples' lands. Today, Indigenous Peoples manage approximately 28 percent of the world's land surface, including some of the most ecologically intact forest areas, making them the primary stewards and custodians of environmental health and species diversity.[3]

Traditional knowledge on the natural environment, and sustainable land-use and management practices have been developed over generations in response to changing environmental and climatic conditions and sociocultural traditions. The resulting diversity of Indigenous forest-based food systems across the world represents a rich genetic pool of wild and domesticated species, inherently designed to decrease risk and increase resilience.[4] The undeniable strength of these systems lies in their heterogeneity and integrated approach to land management at a landscape or territorial scale, contributing to food security and dietary diversity from cultivated fields, wild foods, pastures and waterways. For instance, the Khasi people inhabiting the evergreen forest of Meghalaya in India produce a high diversity of crops, including a rich heritage of native and traditional varieties, while collecting wild edibles from the forest as an important supplement to their diet. Diversified community land-use practices, including rotation, mixed cropping and agroforestry, increase resilience.[4] Traditional communities in the southern Espinhaço Mountains in Brazil have developed unique skills and practices to maintain genetic resources and enhance agrobiodiversity. The same niches planned as reserves for food and medicinal resources attract birds that disperse seeds and promote these species throughout the region. The germplasm also circulates among the various community groups, for the region's entire genetic heritage to be ensured for food and livelihood security throughout the season.[5] In Yunnan Province in China, many useful species that once grew in forests are being relocated into home gardens through the collection of seeds and transplantation of seedlings.[6] These traditional techniques are crucial for ensuring not only food security and nutrition, but also conservation, as home gardens become sites for preserving threatened species.[7] Equally essential to preservation of biodiversity and ecological systems are the closely linked cultural systems and Indigenous languages which often hold unique knowledge.[8] Women, men, the elderly and young people – all play a vital role in the use, conservation and circulation of germplasm, and in passing and maintaining local knowledge and values.

However, Indigenous Peoples and traditional knowledge systems throughout the world are faced with multiple threats, including increasing loss of customary control and management over forest resources,[9] rapid extinction of Indigenous languages,[8] intergenerational erosion of traditional knowledge,[10] acculturation and exposure to formal education systems,[11] among others. Both traditional knowledge and biodiversity are disappearing fast and with them, our opportunities to learn from Indigenous Peoples' approaches to food, which could contribute to improving the resilience and sustainability of food systems worldwide.[12] Indigenous Peoples' rights must be affirmed to preserve their food and cultural systems, including the intellectual property rights to traditional knowledge, and access to equitable sharing of benefits. Strengthening the diversity of cultures and knowledge systems, traditional techniques, genetic resources and mosaic landscapes is vital to tackling the nutrition transition and ongoing homogenization of natural and cultural landscapes.[13]

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Boosting the income and job creation potential of wood producers and processors

by improving access to legal and sustainable markets

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Micro, small and medium-sized enterprises (MSMEs) in the forest sector, including, small-scale timber producers and processors, play a critical role in meeting the growing demand for forest products worldwide, with the potential to contribute to responsible supply chains that combat illegal logging while promoting economic growth. They make vital contributions to livelihoods and national economies. It is estimated that MSMEs provide over 50 percent of total forest-related employment,[1,2] with MSMEs often forming the backbone of the global supply chains of large companies. In emerging economies, seven out of ten new positions in the formal sector were created by MSMEs – a figure that is even higher when informal MSMEs are considered.[3]

The problems facing MSMEs in producer countries are well documented and go well beyond legal compliance, including lack of access to credit and finance, inappropriate regulatory frameworks and poor capacity in advanced production processes, among others.[4] Achieving legal compliance is the first step towards addressing many of these challenges. As global consumer preferences shift towards verified legal and sustainable forest products, many consumer countries are adopting demand-side due diligence measures and procurement policies that require proof of legality or sustainability.

In this new environment, forest sector MSMEs in tropical timber-producing countries will require significant support – and changes to the types of support they receive – to comply with the verification and certification systems put in place to demonstrate legality and sustainability, and ultimately take advantage of these new market opportunities. Legally compliant MSMEs are better positioned to access credit, subsidies, and advisory and business support services, and have a voice in official platforms. Pursuing legal compliance can shift an operator's mindset on business operations by putting previously unreachable goals, like accessing international markets, within their reach. This serves as a motivational factor for improving business operations and production practices, and recognizing the role of businesses in contributing to larger goals such as green economic development, poverty reduction and sustainable forest management.

Pillars of transformational change

Feasible, effective and scalable support is needed to increase the participation of MSMEs in legal and sustainable timber product value chains, ultimately leading to transformational change. FAO experience working with MSMEs has identified three mutually reinforcing pillars of change:

Pillar 1: facilitate compliance through tailor-made support

Offering direct, targeted support to MSMEs at the enterprise level makes them more durable, strong and resistant to threats. This can be achieved by increasing legal compliance through capacity building, mentoring, technical assistance and integration into responsible value chains. Behaviour change can be further cemented by reinforcing technical and business skills.

Accelerating sector-wide digital transformation through developing IT-based sourcing and marketing e-platforms that benefit MSMEs can encourage legality. Online transparency portals as part of broader forest information systems, like the Ghana Timber Transparency Portal and the Open Timber Portal in Cameroon, the Democratic Republic of the Congo and Gabon, are important tools for encouraging open and fair markets and trade, allowing MSMEs greater access to more demanding buyers and generating a "pull" effect on other businesses in the sector to participate in the legal timber trade.

Pillar 2: establish strong support structures

Strengthening the institutions that support MSMEs ensures that the resources they need to succeed are available and accessible through an "ecosystem of support". The institutions within this ecosystem include government and civil society, but consist primarily of private sector associations, which can provide MSME support well beyond the lifetime of a project. Enabling associations to support other associations allows well-established associations and federations to offer services to other associations, such as organizing networking events, fairs and exhibitions.

Pillar 3: create an enabling operating environment

Removing legal "red tape" and pursuing legal reform based on risk-based or differentiated criteria for MSMEs further simplifies and streamlines compliance. To be truly effective, these reform processes should be participatory and offer a voice to the full range of stakeholders in the law-making process, including forest communities as well as Indigenous Peoples, civil society and the private sector. Meanwhile, raising awareness of the public and markets, about the importance of purchasing legal timber products creates markets for MSME products that demand legal and sustainable timber.

These pillars and their associated initiatives can be capitalized upon to boost forest-dependent livelihoods and promote both social equity and sustainability within global timber supply chains. While no single strategy can prepare a nation's MSMEs to participate in the legal and sustainable timber market, implementing a portfolio of these strategies through comprehensive support can help realize the potential of MSMEs as "engines of growth", moving past business-as-usual modes of operation towards green growth and a more inclusive economy. Finally, these transformational changes have the potential to grow over time as the capacity, networks and systems put in place continue to support MSMEs in the long term.

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Congo, Kabo | Bantu bushmeat hunters search for prey in the forest in the early morning about 20 km outside the village of Kabo

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Wild food from forests

Ways to improve nutrition and conserve biodiversity

As many as 50 000 wild species are used by billions of people worldwide for food, medicine, energy, income and other purposes.[1] Around 10 000 species are of paramount importance as food for humans. These include invertebrates, amphibians, fish, reptiles, birds and mammals as well as plants.[1] These wild species contribute to the food security, livelihoods, cultural identity and well-being of many Indigenous Peoples as well as rural communities.

Hunting wildlife for food is practised around the globe.[2] The dependence on wild animals as a source of energy (protein and fats) and vital micronutrients varies according to where in the world humans live. The subsistence of 56–65 percent of modern hunter-gatherer populations is derived from hunted and fished animal food.[3]

However, alarming levels of biodiversity loss that may result in the mass extinction of many species can disrupt the functioning of ecosystems and threaten human health.

Wildlife populations, particularly mammals and birds, have declined due to overexploitation, expanding human populations, habitat loss and in particular, commercial trade to supply wild meat to cities and large towns.[4] It is estimated that in the Congo and Amazon Basins, 6 million tonnes of meat from wild mammals are extracted annually, mostly for consumption by humans.[2, 5]

The use of wild meat needs to be managed at sustainable levels

Since 2018, the Sustainable Wildlife Management (SWM) Programme, an Organisation of African, Caribbean and Pacific States (OACPS) initiative funded by the European Union with co-funding from the French Facility for Global Environment (FFEM) and the French Development Agency

(AFD), has been working on developing sustainable solutions in 15 pilot countries to tackle these challenges.[i] It is one of the most comprehensive global initiatives to develop innovative, collaborative and scalable approaches for conserving wild animals and protecting ecosystems, while improving the livelihoods and food security of Indigenous Peoples and rural communities who depend on these resources.

For instance, the SWM Programme is working in the Mulundu Department, Gabon, where human population densities are low and forest wildlife is abundant. Here, the SWM Programme can promote sustainable management of village hunting and improve the local trade in wild meat. The initiative supports the official establishment of community forests, managed through village hunting associations that help ensure communities have rights over their natural resources and can use them sustainably.

Mesmin Boundembou Nkani, a local hunter from the Doumé village, says:

> I am the secretary of the association and hunting helps me. When I hunt gazelles, I keep some to feed my family and I take the others to town to earn money. Since the beginning of the SWM Programme in 2019, I can already see a small change, it's good.

In tandem, the SWM Programme is working closely with the Gabonese Government to ensure that the necessary frameworks exist to support sustainable, legal and healthy wild meat value chains, which benefit rural communities and ensure biodiversity is conserved.

In many rural areas, wild plants equally contribute to diet quality, provide vital nutrients and are important sources of income for an estimated one in five people around the world, in particular women, children and vulnerable segments of society.[1] Recent research has found a statistically significant relationship for example between tree cover and fruit and vegetable consumption in Africa and Indonesia.[6, 7] Yet two in five of the world's plant species are at risk of extinction, mainly from the disruption of ecosystems and overexploitation.[8]

The SWM Programme is also preserving traditional food and knowledge, through the use of wild plants for example. In the Senegal River delta, the team is testing and promoting nature-friendly alternatives to intensive agriculture trough the cultivation of white waterlily (*Nymphaea lotus*) in abandoned rice fields.[9] The waterlily has many nutritional and therapeutic benefits. For instance, it is used by local women to prevent diabetes and treat various ailments. Our initial estimates from experimental cultivation rank waterlily harvesting as one of the most productive and profitable agricultural activities for local people.

Fambaye Diop, a waterlily farmer from the Senegalese village of Debi says:

> Not only does the water lily heal, but it is incredibly valuable because the kilogram of water lilies has risen from 2 000 to 5 000 CFA francs in only one year [2021].

Growing waterlilies helps the local economy as well as the conservation of wetlands and waterbirds, since this wild plant does not need any agricultural inputs or fertilizers, and seeds are highly appreciated by many waterbird species.

For nearly three decades, FAO has also been supporting sustainable and nutritious wild food consumption, production and trade across Africa, the Pacific and the Caribbean through its dedicated programme on non-timber forest products. In northern Uganda, for example, FAO supported wild product harvesters in adhering to quality standards for safe handling and processing of shea (*Vitellaria paradoxa*) and *Balanites aegyptiaca* kernels into oil, which contains micronutrients and essential fatty acids. Together with partners including People and Plants International and TRAFFIC International, FAO is currently stepping up efforts towards the conservation and sustainable use of wild plants and better nutrition through an initiative specifically targeting wild edible flora as a complement to the SWM Programme. This initiative is rooted in the conviction that preserving traditional and local food systems, many of which are inherently biodiverse, can contribute to improving food security, nutrition and livelihoods, while being a core part of current nature and forest conservation solutions.

These initiatives contribute to the four betters in the new FAO Strategic Framework 2022–2031 in multiple ways. In particular, they contribute to better nutrition by promoting safe food across wild and domestic meat value chains, and by ensuring that the nutritional needs of everyone in both rural and urban areas are met, while encouraging sustainable use of natural resources.

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[i] The SWM Programme is implemented by a consortium of partners including FAO, the International Cooperation Centre of Agricultural Research for Development (CIRAD), the Center for International Forestry Research (CIFOR) and the Wildlife Conservation Society (WCS). For more information, see: www.swm-programme.info/

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Behind the lens

with Brent Stirton

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Gabon, Ndambi Village, close to Lastoursville, Gabon - Scenes from the village of Ndambi

Brent Stirton is a world leading wildlife conservation photojournalist, Senior Getty photographer and recipient of the prestigious 2020 Visa D'Or Feature Award for his work entitled "Bushmeat and Epidemics", featured by National Geographic. Over the years, his photographs have been published by GEO, Le Figaro, Le Monde, Vanity Fair – to name a few – and have been showcased through the work of the Sustainable Wildlife Management (SWM) Programme since 2020. Stirton shares his experiences and stories about the impact of his work in the field.

Interconnectedness

***Unasylva*: Where does your interest in forestry, wild meat and diminishing communities come from?**

Brent Stirton (BS): I'm South African, and most of my work has been done across Africa, so these are not new themes for me! I went from being someone who did a lot of work on conflict, to someone who started to look a lot at the interactions between humans and the environment. I just really believe that all of the issues you have mentioned are deeply intertwined, and as such, they need to be considered equally and given equal weight in our reporting. Whether I'm talking about water or forests or about Indigenous Peoples, none of these really exist without the others. And a lot of the conflicts that I've covered took place in these areas, in wild spaces. So again, for me, it's all very interconnected...

Visual impact

***Unasylva*: What do you think has been the impact of your work over the years on important topics and themes such as food security, nutrition, eradicating hunger and sustainability?**

BS: If I'm doing my job properly, it's providing verifiable visual information to the powers that be. And then I hope that decision-makers can take it further and use it in lobbying for issues that are really important. You know, my job is to

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focus on the things that are often quite esoteric. Therefore, I just hope that what I'm doing is useful in that sense, so that when people are trying to explain issues to other people at a high level, like the [United States] Congress or the European Parliament, for example, visuals really help to pull the story together and more often than not, allow people to see it differently – they often think: "Oh, OK, I get it now, that's why that's important!"

Concrete change

***Unasylva*: Do you have any examples to share about the impact of your work?**

BS: Yes! I've done a couple of stories on ivory: the first one was on the connection between ivory and religion [ivory is carved into religious artefacts], and that story was held up in Congress, it went all the way onto the Senate floor, and Hillary Clinton held it up. The Vatican actually changed their laws [policy] on ivory as a result of that story. There was also significant change on some of the work we've done on anti-poaching and the connection between industrialized poaching, armed groups and wild spaces – so yes, I have witnessed this impact.

Empowerment

***Unasylva*: What stands out for you when you think about the SWM Programme?**

BS: It's one of those programmes that are long term and the tangible results will take time to appear, but it's great to see the genuine engagement established with local communities as the main actors of change. I think that the SWM Programme is providing an opportunity for people to grow and become voices for conservation and for sustainability in their countries, and we really need that you know. And I think that could be one evolution for the SWM Programme. You know, these guys [the rural communities] need support. They have all the intentions, they are smart, they have the knowledge, they know what they want to do, but there's tremendous opposition. And it's hard for them to enact, you know, the way they feel about how they are losing their environment. And the SWM Programme provides an opportunity for these young people to do that. So, for me that's a massive positive.

Ancestral knowledge

***Unasylva*: You also mentioned the importance of communities and getting local people involved in activities that promote sustainability, food security and better nutrition. How do you see your role in this context of "community involvement"?**

BS: My job is to shine a light on local people and communities, and to provide visual evidence of the worth and wealth of knowledge of these people. So, for example, you know, I went to the [Okapi] game reserve [in the Ituri Forest] in the Democratic Republic of the Congo. That's a game reserve for some people. But inside, you know, the Mbuti Pigmy people are some of the most marginalized people on the planet. They've really had a terrible time and have always been at the bottom of the totem pole, but they are genuine custodians of the forest. They live in harmony with the environment in a way that very few people in the world do, you know? So, they're also very humble people who have been so downtrodden for such a long time.

Any opportunity to uplift and showcase their worth [the worth of the Pygmy people], the way that they live in harmony with the environment, the way that they practice perfectly sustainable hunting, where they never take more than what they need.

We know the Mbuti Pigmy people have the same hunting success as a male lion, 20 percent of which is attributed to the technique [net hunting], the way they choose to hunt. There's no aspect of commerce to it, they simply just take what they need...

I had very little time with them… I went to see them and it rained! I was there for four to five days and it rained every single day, very hard. And I probably had about collectively 12 hours in which I could actually take pictures. And I wish that hadn't been the case. But there has always been a lot of time laughing at me because I'm 6 foot 3 and they're pretty short. So, when we walk through the forest, let's say that I don't do that gracefully! They, on the other hand, just melt into it, you know? So, I think they would have liked to have me around for entertainment value just a little bit longer.

It's ludicrous to ignore the skills that they have in any kind of future dealings with conservation in the region. For me, I'm trying to make photos that really showcase that, if I can. And sometimes it's possible, and sometimes it isn't, but the dignity of these people is important for me in the pictures that I'm making.

***Unasylva*: What is the real issue behind the scenes that halts community involvement, in your opinion?**

BS: The issue is you genuinely engage many more people, and you engage a lot of the people who right now are not engaged at all. My point is that we have been trying to do this stuff as like, we, the wildlife people, we're conservationists, etc. This is not a conservation problem. This is a problem for everyone. And we're not having enough input from different departments. Not enough departments are being responsible for stuff. I mean, you know, I'm in the middle of another story on Asian elephants for *National Geographic*, and that's a classic example with many responsibilities involved.

Most of Asian elephants (61 percent) live in close proximity to people. They don't live in parks. So that's an agricultural issue. That's a development issue. That's a planning issue. You know, there's so much that goes with this. It's a tourism issue. So, we need to do a better job of combining all these departments and their resources and thinking about what conservation means, what sustainability means for the future, because it's really right here and right now.

Guyana, Rupununi River | - Leon Baird, 32, is seen bow-fishing in a creek on the Rupununi river

© Brent Stirton/Getty Images for FAO

Gabon | Ndambi village, close to Lastourville

© FAO/Brent Stirton/Getty Images for FAO, CIFOR, CIRAD, WCS

Gender and social protection in the forest sector

More than 25 percent of the world's population, including 1 billion women, depend on forest resources for their livelihoods. Of the 1.35 billion people who live on less than USD 1.25 per day and who depend on natural resources for employment, some 829 million are women and girls – as opposed to 522 million men and boys.[1,2] For a long time, research in forests has been overly stereotypical: men were reported as the exclusive users of forests for economic activities such as logging, construction and harvesting of high-value forest products for sale, while women were identified as solely responsible for collecting products for household use.

However, evidence in recent years has contradicted common opinion and showed that the social patterns of forest use by women and men are much more nuanced than previously thought.[3] For example, the common view that women are the main collectors of non-timber forest products is only true for some parts of Africa. In Latin America, men contribute more than women to household income through unprocessed forest products, while in Asia the contribution is roughly equal.[4] Research has also documented how, in some cases, men and women work together or complement each other,[5] for example in nut harvesting in Brazil or bush mango harvesting in Central Africa.[6,7]

Despite the lack of sex-disaggregated data, it is increasingly evident that women play a key role not only in livelihood activities at community level, but also in productive and income-generating initiatives along wood-based value chains.[8]

Nevertheless, women often remain invisible, and the forest sector continues to be a male-dominated field due to a series of barriers that women face, such as lack of access to productive and economic resources, education and professional skills, as well as financial opportunities and markets. To turn this situation into an opportunity, specific gender-responsive social protection measures would be beneficial to strengthen their livelihoods, and help them build resilience and overcome obstacles. Not only is social protection a fundamental human right, which can help realize other rights, such as the rights to food, to education and to health, but it is also a key pathway for empowering women, increasing resilience and reducing poverty.

Globally, women enjoy less social protection coverage than men. Before the COVID-19 pandemic, only 26.5 percent of women were legally covered by comprehensive social security systems compared to 34.3 percent of men,[10] despite women's higher vulnerabilities and risks. Such weaknesses are particularly significant in the forest sector, where women often work in the informal economy and are more exposed to risks, a condition that worsened further during the pandemic. Still, the majority of COVID-19 response measures have been gender blind. Among 5 000 measures introduced by governments across 226 countries and territories between March 2020 and August 2021, only 1 605 were gender sensitive.[11]

Opportunities for women to become agents of change are only partially explored. The following can be crucial for increasing women's productivity and livelihoods in the forest sector, while managing forest resources in a sustainable manner: (i) the collection and dissemination of sex-disaggregated data; (ii) the recognition and promotion of women's knowledge; (iii) the improvement of their capacities; (iv) the formalization of their rights (including tenure and social protection rights); and (v) their participation in decision-making and professional organizations. Women must play a central role in long-term development and should meaningfully participate in decision-making relating to social protection and forest governance. The principle of gender equality should be mainstreamed in both national social protection and forestry policy and programme objectives, and throughout the programme cycle in a coordinated manner.

Gender-responsive interventions in social protection and the forest sector would require to:

- develop long-term planning strategies to increase women's access to land and tree tenure, resource management and participation in decision-making mechanisms;
- promote and build on women's traditional knowledge of the sustainable management of natural resources to develop community-based forestry development and resource management initiatives;
- promote women's entrepreneurship (e.g. management, business structuring, financial planning, project development, exposure to economic and social risks, efficient market and labour analysis, brand and marketing strategies, mechanisms to facilitate access to bank credit, loan initiatives and technical capacity development);
- promote public-private partnerships to strengthen women's roles in forest-product value chains;
- develop and implement targeted social protection policies and measures to empower women in the forest sector (e.g. national safety nets) and programmes for all women and girls on food and cash-for-work, cash transfer and vouchers, school feeding and mother-and-child nutrition, and increase investment, capacity building and systems development;
- improve the design, implementation and evaluation of nationally appropriate social protection systems, based on context-specific assessments of risks and vulnerabilities for all women and girls in the forest sector;
- ensure that social protection measures are effectively incorporated into policies, strategies and programmes in the forest sector; and
- develop and provide targeted services for women in associations and community organizations, in particular through government institutions and extension officers, non-governmental and international organizations, academia, and apex and specialized forest and farm producer organizations (FFPOs).

The Sustainable Wildlife Management (SWM) Programme,[a] an initiative of the Organisation of African, Caribbean and Pacific States (OACPS) funded by the European Union with cofunding from the French Facility for Global Environment (FFEM) and the French Development Agency (AFD), follows a six-step approach to ensure gender equality and empowerment of women in its activities.[b] For instance, the first step of this approach consists in conducting gender analyses in the countries where the programme is working. At the SWM Programme site in the Congo, this analysis revealed crucial insights about the important role of women in the bushmeat value chain. The assessment, which combined national data and field information collected by the programme site team through focus groups, showed that in the Ouesso Basin, most bushmeat vendors were women, who were involved as wholesalers, importers, exporters and restaurateurs.

Notes:

a. The SWM Programme aims to conserve wild animals and protect ecosystems, while improving the livelihoods of Indigenous Peoples and rural communities, who depend on these resources. It is implemented by a consortium of partners including FAO, the International Cooperation Centre of Agricultural Research for Development (CIRAD), the Center for International Forestry Research (CIFOR) and the Wildlife Conservation Society (WCS). For more information, see: ww.swm-programme.info

b. FAO. 2021. SWM Sustainable Wildlife Management Programme – SWM gender approach. Rome. www.fao.org/3/cb7670en/cb7670en.pdf

Women's poverty and vulnerabilities and their access to national social protection programmes in Kenya

A study conducted by the Centre for Natural Resources Management (CENAREMA) in Kenya showed that women in Baringo, Isiolo, Nairobi and Machakos, Central highlands, Upper Eastern and Rift Valley were poorer and more vulnerable than men in sawnwood and charcoal value chains while having less access to national social protection programmes.

The study found that both men and women were in informal employment and involved in all stages of the value chains, from tree cultivation to sawmill processing or charcoal production and trading. However, men earned more than women and dominated land ownership and use. Since land is used as collateral in resource mobilization, this makes women more vulnerable and poorer. Another finding was that men held 64 percent of executive positions in tree growing associations and 74 percent in the timber industry. This shows that women have limited decision-making powers.

However, the coverage of national social protection programmes was generally limited for both male and female actors in both value chains. Out of 21 key social protection programmes, only four reached more than 20 percent of tree growers, sawmill workers and timber traders in the sawnwood value chain. In the charcoal value chain, 20 programmes reached male charcoal producers while only 12 programmes reached female charcoal producers. Furthermore, within these 12 programmes, 8 programmes covered more male producers than female producers.

Source: CENAREMA. 2020. Assessment on sawnwood and wood charcoal value chains with focus on social protection for male and female forest workers and producers in Kenya. Unpublished study report.

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Following in Wangari Maathai's footsteps

Cameroonian environmentalist Cécile Ndjebet is the 2022 Forest Champion

Cameroonian women's rights and environmental activist, Cécile Ndjebet was announced as the 2022 Wangari Maathai Forest Champion, an award presented by the Collaborative Partnership on Forests. Presented to her during the XV World Forestry Congress in Seoul, Republic of Korea, the award recognizes outstanding efforts by an individual to sustain and improve forests and the communities who depend on them.

The award is named after Kenyan environmental activist Wangari Maathai – the first African woman to receive the Nobel peace prize and a trailblazing supporter of women's rights and safeguarding the environment. She has inspired many to follow in her footsteps, Cécile Ndjebet among them.

Ndjebet founded her first non-governmental organization in 2000, Cameroon Ecology, and followed in 2009 founding the African Women's Network for Community Management of Forests (REFACOF). Combined, these organizations are active in over 20 countries across Africa.

On the occasion of this *Unasylva* issue, Ndjebet inspires us again with insights on her drive and projects to achieve better forest management through female empowerment.

***Unasylva*: What inspired you to take up this cause?**

Cécile Ndjebet (CN): I grew up in a poor family and I was raised by my mother and my older sister. I saw in them the struggles that women of my communities faced, to cultivate land and plant trees, trying to feed their families and ensuring their children would get an education. I saw the problems of rural African women very early in my childhood, and I knew I needed to dedicate my life to improving this

CPF
Wangari Maathai Award
Forest Champion 2022
Cécile Ndjebet

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situation. The best way I knew how was to become an agronomist, and later I dedicated myself to social forestry.

***Unasylva*: What is the nexus between forest management and women's rights and why is it important?**

CN: We are engaged and very committed to promoting women's rights to land and forests, as well as to the mitigation of climate change. There is so much potential in planting trees, so at a local, national and global level, we try to engage women in restoring the environment and mangrove forests, and even in agroforestry. We provide training to help improve their production skills, and leadership training for better and more efficient forest community management.

We need to encourage women, but if you do not own land, you cannot plant trees on it. It is the patriarchal tenure rights that cause women to suffer most, to not be able to feed their children and struggle to make a living. This is what I saw as the first problem, because how can a woman plant a tree on land that is not hers? Therefore, through our organizations we are very committed to finding ways of giving women ownership on a policy level.

***Unasylva*: What do you see as the greatest hurdle to overcome when it comes to achieving gender equality in forest management?**

CN: Collective tenure rights – we need to achieve this through documentation. This would be the first security for women. We can teach women and show them the benefits of planting trees, but who will own the tree you are planting, and how much can you truly benefit from your work if the land is not yours? Without security of land, you will not be able to access funding, how can you prove that what you are planting will be there for 20 or 50 years to help save the environment? This requires a great deal of effort in changing people's mindsets, but you can do this by showing them what is possible, showing the men the benefits when women are involved in forest management.

***Unasylva*: You met Wangari Maathai years ago. What does she represent for you and how has she inspired your work in Cameroon?**

CN: Wangari Maathai is a great inspiration to me. She visited my organization, and she told me that women are the key, she told me I needed to get them to plant trees and explained her love for nature and the responsibility we must take on to safeguard our planet through forests.

***Unasylva*: What does this award mean to you and what do you hope to achieve with it?**

CN: This award really means so much to me, and it means the world because it is an award not only for me, but for all the people I work with, and all of the rural women we have impacted through our organizations. It is an award for them, and this recognition gives me the courage to continue this work. I intend to use the prize money to fund a women's college in Cameroon. I believe it will impact many lives. I also intend to begin a dedicated project to plant trees with women as a contribution to the Bonn Challenge of restoring 350 million hectatres (ha) of degraded and deforested landscapes by 2030, along with being a contribution to the United Nations Decade on Ecosystem Restoration.

Ndjebet embodies the true value and potential impact that grassroots efforts and organizations can bring to rural communities around the world, and she is truly deserving of the title of Forest Champion. Through Ndjebet's own story, we are able to see the incredible impact a vocal and active individual can have, from Maathai to Ndjebet. Who knows how many more she has been able to inspire with her work and her infectious positive spirit.

To follow Ndjebet's efforts, and for more information on her organization, click here.

For more information on the Wangari Maathai Forest Champion Award and its past winners, click here.

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Investing in the present and future of the forest sector

Career development for young professionals

Elaine Springgay, Forestry Officer, Agroforestry, FAO, and Founder and Chair of the Global Network for Forestry Young Professionals (ForYP)

Priya Pajel, Agroforestry Specialist, FAO

The forest sector is evolving at a rapid pace, as are views of the sector itself, and today a wider variety of stakeholders are engaged in forest-related issues than ever before. Issues such as halting deforestation, conserving biodiversity and developing a circular bioeconomy are now central to the work of the forest sector. The next generation of foresters needs to be well equipped with the skills to navigate this changing sector and its challenges, since they will be the ones to ensure that the forest sector remains relevant and ambitious, and plays a significant role in sustainable development and addressing the climate crisis. Investing in continuing education, career development and capacity training for young forestry professionals, utilizing their expertise and engaging with their perspectives in decision-making will help prepare the sector for current and future challenges and opportunities.

The main challenges facing the forest sector today include an ageing workforce and a skills crisis, particularly the misalignment of technical skills and the soft skills that are now required for an increasing number of jobs in the sector. According to a report by FAO and the United Nations Commission for Europe (UNECE) in 2020,[1] employment challenges in the forest sector are largely caused by the globalization of commodity markets, an ageing population, rural to urban migration, and an overall loss of appeal for young professionals due to low wages or risk of injury, among other factors. The report predicts a trend in which the workforce in the traditional forest sector will decrease in numbers, but will increase in other related "green" forest jobs. As the forest sector reorients towards new markets and products, which are linked to current development and environmental agendas, professionals in the sector will need new technological skills as well as broader awareness of environmental and socioeconomic issues traditionally considered outside the purview of the forest sector.

An important part of ensuring that the sector lives up to its growing responsibilities includes increasing the visibility and appeal of forestry as a career pathway for the next generation. This implies competitive salaries, job security and career growth, and more generally, better communication of what the forest sector does, as well as the promotion of the need for and benefits of sustainable forest management. As forest education focuses on improving and updating programmes to appeal to youth, as highlighted in a 2021 report by the International Union of Forest Research Organizations (IUFRO) and International Forestry Students' Association (IFSA) on inspirational stories of young people in forestry in Africa,[2] the forest sector also needs to engage with those already employed and pave the way for its young professionals.

During the XV World Forestry Congress held in Seoul, Republic of Korea, in May 2022, a special event highlighted how young professionals, from entry to mid-career levels, are actively contributing to addressing the gaps that have been identified. Moreover, young professionals under 40 years old who have been in the sector for five to fifteen years are experts in their own right and can help identify areas of work and find even more opportunities for the sector to evolve and move forward. It is important for the sector to recognize the existing expertise and contributions of its youth, providing an enabling environment that allows young foresters to thrive and become the sector's leaders, resulting in benefits for all.

Career development programmes targeting young professionals are important tools not only for enhancing the capacities of youth and young professionals, but also for strengthening their contributions to the forest sector as a whole. For example, some countries have graduate programmes that provide career development and training over a three-year period. By the time the programme is completed, the young professional has an understanding of different technical areas within the forest sector and is ready for a lower management role. Similarly, the Institute of Chartered Foresters in the United Kingdom of Great Britain and Northern Ireland is launching a Future Leaders programme where chosen participants undertake five months of leadership training specific to the forest sector. Moreover, the International Tropical Timber Organization (ITTO) has been running its fellowship programme for over 30 years, which aims to strengthen professional expertise in tropical forestry and support fellows in finding work in related disciplines; over 1 400 participants have benefited from the programme, not only gaining confidence as young professionals but also shaping the forest sector in their respective countries. These programmes, including vocational training and mentorship initiatives, should be strengthened, replicated and scaled up.

Alliances and networks among young forestry professionals and between generations of forest sector professionals and students are invaluable and help to build expertise and create empowering, collaborative workplaces in which young people can thrive. One example is the Project Learning Tree Canada's Green Mentorship Programme, which provides six-month matches between mentors and mentees working in forest and conservation. Another initiative that recognizes the importance of connecting and empowering forestry's young professionals is the Global Network for Forestry Young Professionals (ForYP), which was launched at the XV World Forestry Congress. ForYP aims to create a community of young professionals in the forest sector who network, develop their professional skills and gain confidence to engage and lead forestry through the twenty-first century.

The forest sector faces a future where the recognized contributions of trees and forests to

Operationalizing meaningful engagement and participation of youth and young professionals for a better environment and life in the forest sector

Amos Amanubo, Youth Outreach and Coordinator, FAO

Recently, there have been an increasing number of calls to recognize the meaningful engagement of young people as key stakeholders in the nature and climate spaces, as a human right to promote intergenerational justice. The XV World Forestry Congress – the world's largest-ever gathering on forests – demonstrated that, provided a set of preconditions are fulfilled, it is possible to leverage the potential of youth and young professionals, and enhance their meaningful engagement and participation in fora on the use of natural resources, climate and biodiversity for a better life and a better environment.

Through the Youth Call for Action endorsed by the XV World Forestry Congress, young people outlined priorities for fostering the meaningful engagement and participation of youth, which include enhancing the standard of, and access to, forest education and capacity building, providing decent work and employment, mainstreaming gender and facilitating access to finance and political participation. To achieve this, there will be a need for political will to recognize the role and contributions of youth and young professionals in the forest sector by mainstreaming these priorities across relevant programme planning, design, implementation and outcome evaluation, and through investment in enhancing the capacity of young people. Coupled with the institutionalization of youth participation this will help generate a sense of self-empowerment, redress systemic and structural inequalities, and establish representative and inclusive procedures.

Young people can either be a vital human resource for championing sustainability best practices in the formal and informal forest sector, or they can become a threat to it by engaging in unsustainable activities and land uses, such as illegal logging, which cause deforestation. What they become to the forest sector depends on how they are engaged and invested in.

Source: FAO & Korea Forest Service. 2022. *Work with Us – Youth Call for Action*. www.fao.org/3/cc0249en/cc0249en.pdf

society and the environment are diversifying, and where the demand for expertise in tree and forest management is increasing, which requires an equally diverse community of professionals with an adaptable set of skills and knowledge. To remain relevant, the forest sector needs to support its young professionals by investing in career development that incorporates time, experience, mentorship and secure job opportunities, thus allowing for visibility, networking and career growth.

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From the mountains of Kyrgyzstan to the catwalks of Milan

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Kyrgyzstan Barskoon | Women in the warehouse working on sample of skirt and decorating it with felt.

Ethical fashion has the potential to change lives for the better

Since 2017, the Mountain Partnership Secretariat (MPS) at FAO has been working with ethical fashion brands on collaborations that boost the livelihoods of rural mountain women.

Rural mountain communities in developing countries are among the world's most marginalized people. They are cut off from infrastructure and markets, and the mountain ecosystems they call home are fragile and under threat from climate change and degradation.

Mountain people, in particular mountain women, are the guardians of extraordinary ancestral knowledge. Yet high rates of poverty in rural mountain areas force men to migrate to cities in search of work, leaving them behind to manage farms and households.

Through the Italian Development Cooperation-funded Mountain Partnership Products (MPP) initiative, the MPS works with smallholder producers in developing countries to create enterprises, enhance their marketing skills and boost their livelihoods by improving the value chains of mountain products such as organic food, textiles and tourism services.

One of the producers involved in the initiative is Topchu, a women's collective in Barskoon, Kyrgyzstan. The artisan group creates carpets, clothes, silk scarves and wall hangings using traditional Kyrgyz feltwork.

"Since 2017, we have sold over 500 scarves through the MPP initiative, earning us EUR 12 500. Each woman in Topchu receives EUR 50 per month thanks to the project," said Ada Rasulova, a member of Topchu.

When Haitian-Italian designer Stella Jean – creator of the Laboratory of Nations – was introduced to Topchu's work via the FAO Women's Committee and the MPS, the idea was born to create a fashion collection together with the Kyrgyz artisans that would build their economic autonomy and preserve their traditions while providing them with a place in the global market.

Topchu and Jean worked together to transform a traditional Shyrdak motif into a pattern for contemporary clothing. The collection was displayed at Milan Fashion Week in February 2021, to critical acclaim.

"The focus of my work is to promote fashion's potential to provide significant opportunities for decent work for both men and women around the world, while ensuring important cultural knowledge does not disappear forever," said Jean.

As a result of the collaboration, the women have been able to boost their incomes, support their children's education and expand their vegetable gardens.

A new MPS-promoted collaboration with Jean and a mountain women's collective will be announced on International Mountain Day 2022. The year 2022 has also been proclaimed the International Year of Sustainable Mountain Development[1] by the United Nations General Assembly.

Following the collaboration's success, a new initiative has been developed that will involve more ethical fashion brands to impact a greater number of producers. Fashion for Fragile Ecosystems is part of the "Business incubator and accelerator for food, fashion and tourism in mountains and islands" promoted by the Coalition of Fragile Ecosystems, a collaboration between the MPS and the Global Island Partnership. The initiative will promote an equal exchange of skills and knowledge, apply traditional design to contemporary fashion, preserve cultural heritage while driving economic development, and utilize ecofriendly production.

About the Mountain Partnership

The Mountain Partnership[2] is the United Nations alliance dedicated to mountain peoples and environments. Through the exchange of experience, knowledge and expertise among its members (consisting of 61 governments, 13 subnational authorities, 18 intergovernmental organizations, 372 major groups as of 6 September 2022), the Mountain Partnership addresses challenges facing mountain regions at the global level. Its main role is to facilitate dialogue on priority issues faced by mountain peoples and environments. The alliance's secretariat is hosted by FAO in Rome.

Mountain Partnership

About the International Year of Sustainable Mountain Development 2022

MOUNTAINS 2022

The International Year of Sustainable Mountain Development represents a unique chance to raise awareness on the role of mountains and mountain people for the planet and sustainable development, as well as for achieving the Sustainable Development Goals. It is an opportunity for catalysing action and investments to build the resilience of vulnerable mountain communities and ecosystems in the spirit of the 2030 Agenda for Sustainable Development to leave no one behind. It also marks the twentieth anniversary since the first International Year of Mountains in 2002 as well as the twentieth anniversary of the founding of the Mountain Partnership.

Notes

1. **Mountain Partnership**. 2022. International Year of Sustainable Mountain Development 2022. In: *Mountain Partnership*. Cited 21 September 2022. www.fao.org/mountain-partnership/internationalyear2022/en
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International Mountain Day 2022 focuses on the role of women in sustainable mountain development

"Women move mountains" is the theme of International Mountain Day 2022 celebrated on 11 December.

Women play a key role in environmental protection and social and economic development in mountain areas. They are often the primary managers of mountain resources, guardians of biodiversity and keepers of traditional knowledge.

11 December
International
MOUNTAIN DAY
2022

The day will provide an opportunity to raise awareness about the role of women and support actions to improve their access to resources, services and opportunities, participate more effectively in decision-making and improve their incomes. It is a chance to promote gender equality and therefore contribute to improving social justice, livelihoods and resilience in mountains.

Hahua
SIERRA LEONE

©World Bank/Dominic Chavez

Getting money where it matters

Promoting better access to markets and finance to improve livelihoods and resilience

Marco Boscolo,
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Increased levels of finance and investment are urgently needed to counter climate change, biodiversity loss and persistent poverty and inequality. According to one estimate,[1] total financing for halting deforestation, restoring forest landscapes and increasing the use of sustainably produced wood products needs to increase threefold by 2030 for the world to meet climate, biodiversity and land degradation neutrality targets. The estimated required finance for forest establishment and management alone amounts to USD 203 billion per year by 2050. To achieve this increase, all sources of funding – domestic government, private and official development assistance – will need to be tapped into.

Scaling up financing for smallholders, Indigenous Peoples and rural communities is a particularly important part of the challenge. In many areas, more support is needed to finance the transition from unsustainable to sustainable production systems, including sustainable forestry and agroforestry. There is also evidence that forests managed by rural communities and Indigenous Peoples are extensive and biodiverse and that they exhibit low deforestation, store significant carbon and support rural livelihoods and food security. Smallholders, rural communities and Indigenous Peoples own or manage at least 4.35 billion hectares (ha) of forest- and farmlands worldwide, producing farm and forest products worth up to USD 869 billion to USD 1.29 trillion per year.[2] Smallholders contribute significantly to global food security, producing roughly 35 percent of the global food supply according to Lowder *et al.*[2] Despite this, smallholder producers received less than 2 percent of climate finance in 2019.[3]

Transforming agrifood systems towards a healthier, greener and more sustainable future requires more secure tenure rights and increased accessible, local-level finance for these groups. The recent announcement of a "collective pledge of USD 1.7 billion of financing, from 2021 to 2025, to support the advancement of Indigenous Peoples' and local communities' forest tenure rights and greater recognition and rewards for their role as guardians of forests and nature" during the twenty-sixth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26)[4] is a promising signal, but needs innovative delivery mechanisms for financing to reach smallholders, rural communities and Indigenous Peoples.

FAO's work

In 2020–2021, FAO's work to address this challenge has increased significantly. FAO has developed guidance material to help forest producers turn sustainable forest-based activities into commercially viable businesses,[i,5] and delivered capacity building and mentoring to organizations of forest producers to help them to access markets and finance. It also facilitated dialogues and investment fora to share challenges, opportunities and lessons learned to strengthen forest value chains in selected countries, as well as workshops to support countries to access climate finance. FAO promoted exchanges of good practices on ways to unlock climate funding for forest and farm producers[6, 7] and established a community of practice on forest and landscape restoration finance. FAO supported various countries to access funds from the Global Environment Facility (GEF),[ii] including the Least Developed Countries Fund[iii] (LDCF), the Adaptation Fund[iv] and the Green Climate Fund (GCF). FAO leads the GEF-7 Sustainable Forest Management Impact Programme on Dryland Sustainable Landscapes (DSL-IP, USD 104.5 million), providing support to 11 countries[v] in achieving land degradation neutrality.

FAO, through its Forest and Farm Facility (FFF), has piloted an efficient grant mechanism, which, in 2021 has deployed USD 7.6 million, most of which (56 percent) went directly to forest and farm producer organizations through letters of agreement and direct beneficiary grants. FAO is also providing small grants under GEF-funded The Restoration Initiative programme to seven local entrepreneurs in Sao Tome and Principe (USD 87 000) and to an initial 40 microprojects in the Democratic Republic of the Congo (approximately USD 300 000), matched by at least 10 percent of farmers' own contributions.

Ramping up finance to small producers, rural communities and Indigenous Peoples

FAO's experience in addressing these challenges has yielded experiences and lessons on how best to support these groups, which underpin the Priority Programme Area (PPA) Better Life: Scaling Up Investment. Under the PPA, FAO is promoting inclusive economic growth by reducing inequalities and supporting countries to scale up high-impact investments in agrifood systems, including forestry.

We learned that scaling up access to markets and finance by small producers often requires partnerships with larger actors in the value chain that can work not only as off-takers of their products, but also as providers of inputs, finance, capacity building and technical assistance. For example, in Mozambique, FAO promoted beekeeping in remote and impoverished communities by linking them to a larger honey producer that provided equipment, hands-on training and mentoring, as well as a market for the honey the beekeepers want to sell at a fair price. Several other examples of equitable and constructive collaboration between small producers and larger operators were shared during the XV World Forestry Congress, which took place in May 2022 in the Republic of Korea.

Since relationships between larger operators and small producers can also be exploitative and detrimental to the latter, it is important to facilitate knowledge sharing and dialogues on financing mechanisms and partnerships that work, as well as document good practices to ascertain the conditions under which these partnerships are truly sustainable and fair in their distribution of benefits and costs. FAO organized a global knowledge exchange on community-based mechanisms for territorial financing in Mexico (October 2022) and will organize a regional exchange on "Unlocking

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[i] This guidance will soon be available in French as well, and an e-learning course based on the guidance is almost complete.

[ii] Guinea, Kenya, Madagascar.

[iii] Central African Republic.

[iv] Burkina Faso, Vanuatu.

[v] Angola, Botswana, Burkina Faso, Kazakhstan, Kenya, Malawi, Mongolia, Mozambique, Namibia, United Republic of Tanzania, Zimbabwe.

finance for smallholders: lessons and practices for restoration and sustainable production in Africa" in Kenya (February 2023). Both create more opportunities for forest producers to not only learn from each other, but also connect with investors and potential private sector partners.

Accessing finance and markets by these producers requires a certain level of organization among smallholders to reach scale as well as business and finance skills, which need strengthening. Therefore, capacity building to develop and grow sustainable and viable businesses needs to continue. Institutional innovations, such as the setting up of finance hubs that can provide information, guidance and networking opportunities as public goods for the whole sector can further accelerate the transition from unsustainable to sustainable practices. Appropriate policies and forest finance strategies are also important.

Scaling up finance to the smallholders, rural communities and Indigenous Peoples, will also require new finance solutions and investment modalities. Since the FFF has been piloting an innovative mechanism that allows the implementing organization to contribute financially to the project, through matching grants' agreements. More finance for small-scale stakeholders can also be mobilized by utilizing strategies to de-risk smallholder projects, such as using trees as collateral for loans, insurance mechanisms and building assets based on income from ecosystem services, through the sale of carbon offsets for example.

Notes

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Fire management

Shifting from reaction and response to prevention and preparedness

A forest fire organized by herdsmen and hunters with the scope of creating pasture land and to drive out a species of rodent which will be killed for comestible use

©FAO/Roberto Falduti

Peter Moore,
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Lara Steil,
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Together with the United Nations Environment Programme (UNEP) and GRID-Arendal, FAO highlighted in a 2022 report[1] how climate change and land-use change are projected to make wildfires more frequent and intense. Damaging wildfires are burning longer, more intensely and occurring in forests, peatlands and permafrost during fire seasons that are extended in many places. Approximately 340–370 million hectares (ha) of the Earth is burnt annually. About 20 percent of the area burnt occurs in forests, and 80 percent in non-forest such as grasslands, savannahs and shrublands. The full damage and loss from wildfires – financial, social and environmental – extends for days, weeks and even years afterwards.

Notably, not all fires are harmful and, in many ecosystems, fire performs a key role in recycling, regeneration and stimulating replenishment. However, the problem is that extreme wildfires are on the rise. While 10 percent of all fires in the global landscape are ignited by natural causes, mainly lightning, 90 percent of fires are human-caused and some become wildfires. The huge quantities of greenhouse gases emitted by wildfires further contribute to the climate crisis, spurring more warming, more drying and more burning.

Certainly, globally to locally, wildfires are impacting the environment. A wildfire in Pakistan decimated forests critical for the livelihoods of local people in Balochistan in 2022. There were severely damaging wildfires across the western United States of America in each year in the last three years, wildfires increased in the Brazilian Amazon and Pantanal, and in the neighbouring countries of Paraguay and the Plurinational State of Bolivia. In 2021, Nepal had one of its strongest wildfire seasons on record with thousands of fires, and this has been repeated in 2022. Record-breaking temperatures in 2021 accompanied devastating fires in Canada, Greece, Italy and Türkiye.

To underpin progress on a better environment, there is a need to shift the focus of attention and investment on wildfires from reaction and response to prevention and preparedness. Extreme wildfires must be tackled before they begin through integrated fire management, detection, prevention, coordinated approaches and international cooperation.

The FAO Fire Management Strategy sets out its approach to fire management in support of Member Nations. This systematic approach seeks to understand the context, situation and actors involved, then analyse options to reduce risk and identify capacity requirements. Integrated fire management (IFM) includes all activities associated with the management of fire-prone land, including the use of fire to meet land management goals and objectives.[2] This requires a holistic approach to addressing fire issues that takes into consideration biological, environmental, cultural, social, economic and political interactions. FAO champions have integrated approaches to fire management for rebalancing the emphasis on underlying causes and seeking sustainable solutions to a better environment by reducing the risk of wildfires.

FAO and UNEP are working on a Global Fire Management Platform to build on existing initiatives and make global technical competence and integrated capacity of all partners available to FAO Members in a coherent, comprehensive and consistent way over time. It will serve as a system-of-systems where existing data, information and tools will strengthen countries' capacities to implement IFM to reduce the negative impacts of wildfires on livelihoods, landscapes and global climate.

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XV WORLD
FORESTRY CONGRESS
XV WORLD FORESTRY CONGRESS
Building a Green, Healthy and Resilient Future with Forests

Transformative partnerships

Adding value, delivering together

© FAO/Pilar Valbuena

Collaborative Partnership on Forests Dialogue, a special event at the XV World Forestry Congress

Maria Helena Semedo, Deputy Director-General, FAO and Chair of the Collaborative Partnership on Forests

Robert Nasi, Director-General of CIFOR and Managing Director of CIFOR-ICRAF and Vice-Chair of the Collaborative Partnership on Forests

CPF
Collaborative Partnership on Forests

Partnerships are crucial to accelerate progress towards achieving the Sustainable Development Goals (SDGs), as highlighted by SDG 17, which focuses on global partnerships and the mobilization of financial resources.

No single organization has the mandate, power or resources to deliver alone transformative, systemic change. It is only by bringing together governments, intergovernmental organizations, farmers and producers, civil society, scientists, academia and the private sector that we can mobilize and scale up the technology, innovation, financing and capacity development needed to address today's complex and interconnected global problems.

This is especially true for the challenges facing forests and for strengthening the contributions of forests and trees to the achievement of the SDGs. Forests offer vital ecosystem services, economic opportunities and are home to much of our terrestrial biodiversity. Today we need to take a triple approach on conservation, restoration and sustainable use of forests.

But halting deforestation, restoring forests and changing the way we manage land requires transdisciplinary collaboration and integrated solutions. The complexity of the direct and indirect drivers of deforestation calls for a combination of innovative policies and regulatory frameworks, private and public leadership, citizen-led movements, appropriate finance, knowledge generation and exchange of experiences, and technical and technological cooperation. No single organization can deliver these alone.

Successful transformative partnerships must be based on trust, built and developed between partners. In addition, to fully benefit from the comparative advantages of different partners, each one needs to look beyond their specific contribution to how it will fit into the wider effort. In this spirit, the Collaborative Partnership on Forests (CPF)[i] aims to add value and deliver together.

The Collaborative Partnership on Forests

The CPF was created in 2001 as part of the International Arrangement on Forests, which also established the United Nations Forum on Forests (UNFF) – a high-level intergovernmental policy forum that aims "to promote the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end."[1]

The CPF is an informal, voluntary arrangement among 15 international organizations and secretariats that have substantial programmes on forests. CPF members have a shared vision of a world where "by 2030 all types of forests and forest landscapes are sustainably managed, their multiple values are fully recognized, the potential of forests and their goods and services is fully unlocked, and the Global Forest Goals, the SDGs and other global forest-related goals, targets and commitments are achieved."[2]

To support countries to achieve these aims, the CPF effectively enhances coherence and synergy on forest-related issues and values among its members.[3] Chaired by FAO and with partners from conventions, financial institutions, intergovernmental agencies with a focus on forestry, environment and conservation, and research organizations, the CPF is in a unique position to drive transformational change.

Adding value and creating impact across policy areas

Forests can be a driving force in tackling climate change, food insecurity and biodiversity loss. The CPF is working to show forests can provide solutions to some of the most pressing issues on the global agenda. Among its achievements is the streamlining of global reporting on forest resources, strengthened collaboration on sustainable wood value chains to enhance social, economic and environmental benefits, and stronger forest education. Under the joint initiative Green Finance for Sustainable Landscapes, the CPF boosts bank and investor interest to increase capital flows towards forest and landscape restoration, forest education and practices that would decouple agriculture from deforestation.

The CPF further focuses on forest and landscape restoration, forest communication, scientific information and finance facilitation to help countries design national forest financing strategies, and it supports grassroot leaders through the Wangari Maathai Forest Champions Award.

Forests on the international agenda

To be transformative, partnerships must be prepared to continuously self-reflect. The upcoming mid-term review of the International Arrangement on Forests 2024 will include an assessment of the effectiveness, impact and added value of the activities of the CPF to ensure that it continues to support countries in strengthening their implementation of the United Nations Strategic Plan for Forests, and to foster the achievement of the Global Forest Goals and the SDGs. The

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[i] More information on the CPF is available here: www.fao.org/collaborative-partnership-on-forests/en

CPF will do its part to support the future policy directions.

The United Nations Climate Change Conference (COP27) which took place in Sharm el Sheikh, Egypt in November 2022 was a milestone event where agrifood systems were a key priority, with the launch of initiatives, such as Food and Agriculture for Sustainable Transformation (FAST). This historic declaration on forests and land use at COP26 in Glasgow[4] in 2021 saw over 140 leaders, accounting for more than 90 percent of the world's forests, committing to work together to halt and reverse forest loss and land degradation by 2030. At COP27, the CPF played its part in boosting momentum when heads of agencies launched an Action Plan for Turning the Tide on Deforestation for the United Nations system and beyond, emphasizing members' own commitments and calling for broad concrete action.

Through strategic partnerships such as the CPF, transformational change *can* be achieved, and barriers to addressing deforestation and forest degradation *can* be removed. We are all in this together.

Notes

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Protecting wildlife and Indigenous Peoples’ livelihoods in the Democratic Republic of the Congo

The Mbuti people at the heart of wildlife management

©FAO/Thomas Nicolon

Democratic Republic of the Congo | Thomas Aseli is a Mbuti hunter-gatherer from the Ituri Forest in the northeastern part of the ~~country~~

"I have a duty to protect the forest, as it feeds me and my family," says Thomas Aseli.

The Ituri Forest, which Aseli speaks about with emotion, is located in the northeast of the Democratic Republic of the Congo and is a sacred place for the Indigenous Mbuti people. Within this spectacular rainforest is the Okapi Wildlife Reserve. It occupies about one-fifth of the forest and harbours some of the richest wildlife in Central Africa, including a large population of the reserve’s iconic okapi. It is also home to more than 100 other species of mammals, including several endangered species such as the forest elephant and the eastern chimpanzee.

Since the dawn of time, the Mbuti people have lived in balance with this incredible biodiversity. Their survival depends on a healthy ecosystem, and their food system and livelihoods support that.

Their hunting practices ensure that a natural equilibrium remains, while wild meat provides the communities with an important source of protein, fat and micronutrients.

When the time comes to hunt, part of the clan silently slips through the equatorial forest’s dense vegetation. Not a sound betrays the lightness of their steps.

"The forest is something to be observed, but also to be listened to," explains Aseli.

With nets on their heads and spears in their hands, the group moves forward with the hope of capturing the animals that are so critical to their survival.

"Lately, we are only catching animals by chance. They are now hiding far away," says Aseli.

©WCS/Mark Gately

The forests of the Congo Basin are being depleted at an alarming rate by a growing wild meat trade and demand from city dwellers. This is undermining the Mbuti food system and more broadly, exacerbating the poverty that Indigenous Peoples and rural communities are facing. This increased demand is itself driven by the proliferation of commercial and trade activities, as well as food insecurity in neighbouring provinces, particularly when other meat options are scarce.

Wildlife and minerals such as gold and diamonds are also attracting mining, farming and logging operators, poachers and armed militias to the Okapi Wildlife Reserve.

"There are now many people in the forest, but I live there. I don't want others to come and destroy it," says Aseli.

Each year, more than 5 million tonnes of wild meat are being taken from these forests in total. Wildlife depletion in the region threatens not only the Okapi Wildlife Reserve, but also the survival, cultural identity and the ancestral food and knowledge systems of the Indigenous Peoples, including the Mbuti.

In 2018, a consortium of international partners led by FAO launched the Sustainable Wildlife Management (SWM) Programme, which is working in 15 countries, including the Democratic Republic of the Congo.

The SWM Programme is working in the country to reduce the threats to biodiversity and to the Mbuti people both within and outside the Okapi Wildlife Reserve. One of the SWM Programme's objectives in the reserve is to update the hunting rules in a participatory manner with Indigenous Peoples and rural communities. Currently, hunting is allowed in some areas of the reserve. However, some of the regulations for the use of natural resources, especially those concerning wildlife, are outdated. Moreover, despite a ban on external hunters, they still manage to access these areas. The SWM Programme is collaborating with the reserve's managers to apply and enforce these new rules.

To further decrease hunting pressure, the SWM Programme and rural communities are working together to develop small-scale chicken and palm larvae farming as alternative sources of protein and income.

"My wish is to conserve the forest for future generations so that they may also find the animals that I find now," says Aseli.

The SWM Programme is an initiative of the Organisation of African, Caribbean and Pacific States, funded by the European Union and cofinanced by the French Facility for Global Environment (FFEM) and the French Development Agency (AFD). It is implemented by a consortium of partners which includes FAO, the International Cooperation Centre of Agricultural Research

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for Development (CIRAD), the Center for International Forestry Research (CIFOR) and the Wildlife Conservation Society (WCS). In the Democratic Republic of the Congo, activities are being coordinated by WCS, in collaboration with the Congolese Institute for the Conservation of Nature. The aim of the SWM Programme is to improve wildlife hunting regulations, increase the supply of sustainably produced meat products and farmed fish, empower and strengthen the management capacities of Indigenous Peoples and rural communities, and reduce demand for wild meat, particularly in towns and cities.

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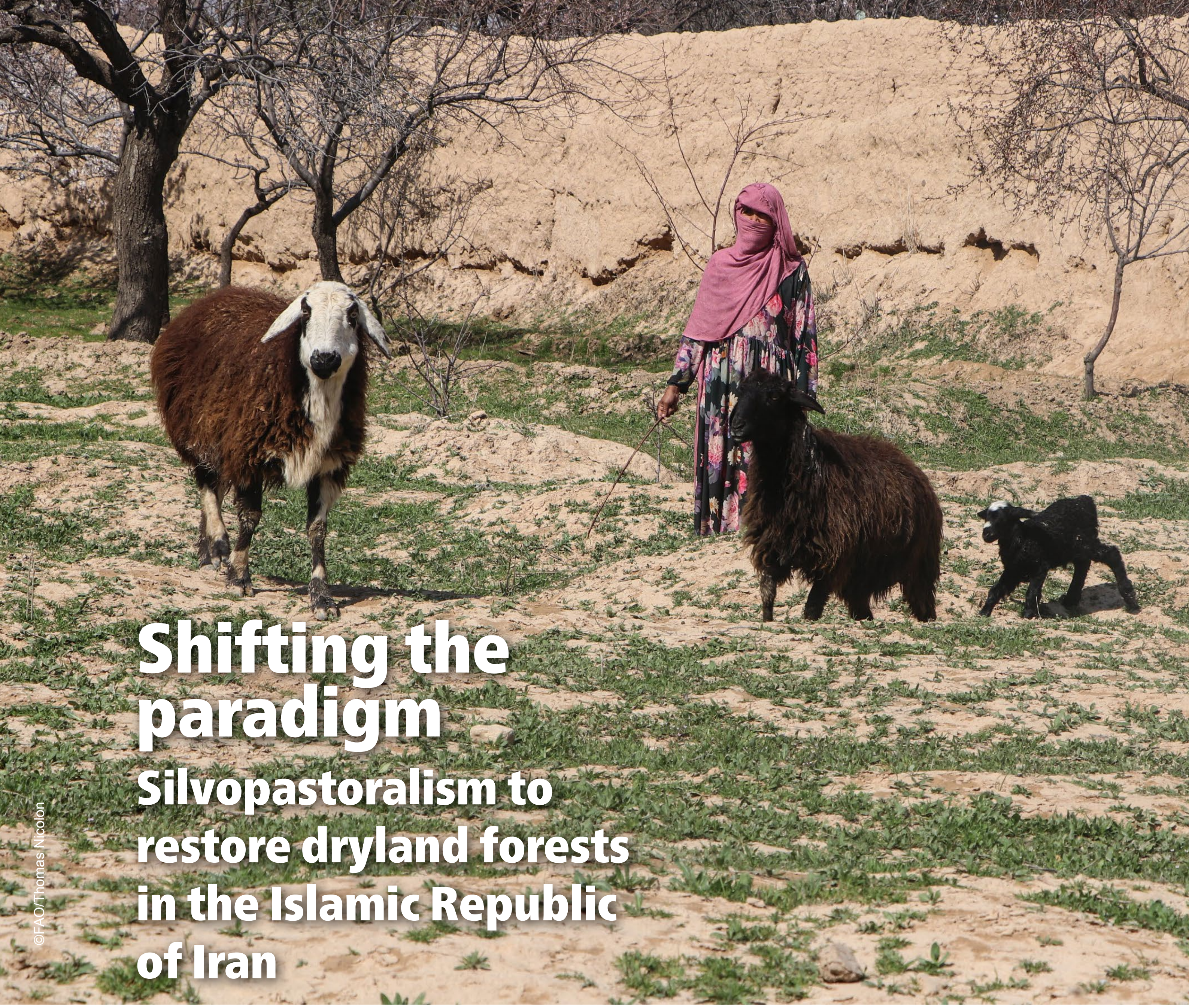

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Shifting the paradigm

Silvopastoralism to restore dryland forests in the Islamic Republic of Iran

Fidaa Fawwaz Haddad, Dryland Forestry Officer, FAO

When Fatemeh's husband went bankrupt and left her as the primary caretaker for her three children, her world was turned upside down. She had no way of supporting her family, and making money in her local area of the Islamic Republic of Iran is not easy. Many traditional livelihoods like farming are at the mercy of unstable weather conditions and problems caused by land degradation. She worried about her family's future.

Se-Qale village, where Fatemeh lives, is an ecologically fragile area: in fact, 85 percent of the land in the Islamic Republic of Iran is arid to semi-arid. These areas often suffer year-long spells of drought, untimely floods, severe wind erosion and high soil salinity. The challenging natural conditions are compounded by deforestation for fuelwood and timber, and land degradation from overgrazing of livestock. Almost half of the Iranian population lives in these areas, making life difficult for Fatemeh and others like her.

This is why FAO's Rehabilitation of Forest Landscapes and Degraded Land (RFLDL) project targeted the Islamic Republic of Iran, with the aim of reversing and reducing land degradation and biodiversity loss through participatory sustainable land and forest management (SLFM) initiatives to restore land, increase biodiversity and boost alternative livelihoods. This includes silvopastoralism, which combines trees and grazing livestock in sustainable production systems. For Fatemeh, this project became her lifeline.

"I was determined to find a new source of income to support my children," she said. After considering her skills and the tools available to her, Fatemeh concluded that baking traditional cookies could be a feasible option to generate income, but she was unsure whether she had the resources to pull it off. Fortunately, Fatemeh was a perfect candidate for help from her local community's Sustainable Community Development Fund (SCDF), set up as part of the RFLDL project.

Bottom-up transformation

Based on a SLFM approach, FAO's RFLDL project is funded by the Global Environmental Facility (GEF) and implemented by FAO and the Ministry of Agriculture Jahad. The RFLDL project is unique for recognizing the importance of local community involvement in restoration, fostering social relations and building trust between communities and government agencies.

With the aim of equipping the local community with alternative livelihoods that do not impact the local environment, the project helped local men, women and young people start new businesses, facilitating access to village loans and providing vocational training. Participatory village resource management and development committees were established to identify the needs of beneficiaries, one of which was Fatemeh. The project even provided essential equipment.

With this help, Fatemeh was able to start her baking business. She was part of over 2 500 households who capitalized on the project's skills training and loans to boost their incomes sustainably.

A holistic approach

The project focused not only on alternative livelihoods, but also on rehabilitation of local areas.

In 2019, the project rehabilitated 46 981 hectares (ha) of rangelands, adding a further additional 2 224 ha in 2021, exceeding the project's target. The project also set up 9 km of windbreaks along community orchards, planted 681 ha of medicinal plants and provided the communities with gas stoves and ovens, reducing deforestation caused by harvesting of fuelwood. For example, in the no-hunting area of Ziarat-Shah, wild fauna recovery improved by 25 percent and wild species growth increased by 10 percent, two processes that are vital to the success of silvopastoral systems.

A participatory and integrated approach to planning, implementing and evaluating SLFM was applied throughout the project. The project remained responsive to risks and challenges, and set up national mechanisms to involve stakeholders, recognize the project-established community institutions and make progress towards mainstreaming SLFM initiatives into the laws and regulations of the Natural Resources and Watershed Management Organization of the Islamic Republic of Iran.

By restoring local land, providing local communities with sustainable livelihoods and boosting the area's biodiversity, the RFLDL project has taken a holistic approach to land rehabilitation, recognizing the interconnectedness of the social, economic and environmental dimensions of sustainability. In addition to its important work in the field, in December 2022, FAO will be launching a new e-learning course, designed to raise awareness of the impacts and causes of forest degradation in dryland areas and increase knowledge of SLFM.

Source: **Haddad, F.F., Ariza, C. & Malmer, A.** 2021. *Building climate-resilient dryland forests and agrosilvopastoral production systems: an approach for context-dependent economic, social and ecologically sustainable transformations.* Rome, FAO. https://doi.org/10.4060/cb3803en

For more information on drylands and the RFLDL:

Dryland forestry at FAO
Building climate-resilient dryland forests and agrosilvopastoral production systems
Rehabilitation of Forest Landscapes and Degraded Land project

Publications

Food and Agriculture Organization of the United Nations
2022
THE STATE OF THE WORLD'S FORESTS
FOREST PATHWAYS FOR GREEN RECOVERY AND BUILDING INCLUSIVE, RESILIENT AND SUSTAINABLE ECONOMIES

The State of the World's Forests 2022

Forest pathways for green recovery and building inclusive, resilient and sustainable economies

This guide aims to improve the capacity of small producers, their organizations and small and medium-sized enterprises to access private investment and finance for sustainable forest-based businesses. It introduces ten key modules to include in any bankable business plan and provides templates, tips and advice on thinking through and substantiating on the information needed to produce convincing investment proposals.

https://doi.org/10.4060/cb9360en

Food and Agriculture Organization of the United Nations
Developing bankable business plans
A learning guide for forest producers and their organizations
24

Developing bankable business plans

A learning guide for forest producers and their organizations

This guide aims to improve the capacity of small producers, their organizations and small and medium-sized enterprises to access private investment and finance for sustainable forest-based businesses. It introduces ten key modules to include in any bankable business plan and provides templates, tips and advice on thinking through and substantiating on the information needed to produce convincing investment proposals.

https://doi.org/10.4060/cb4520en

Food and Agriculture Organization of the United Nations
FRA 2020 Remote Sensing Survey
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FRA 2020 Remote Sensing Survey

The FRA 2020 Remote Sensing Survey is a global collaborative study on land-use dynamics between 2000, 2010 and 2018 focusing on forest and forest changes. It shows that despite a slowdown in the trend of global deforestation, high deforestation rates were recorded in South America, as well as Africa and Asia, and that 90 percent of deforestation is attributed to expansion.

https://doi.org/10.4060/cb9970en

Halting deforestation from agricultural value chains: the role of governments

https://doi.org/10.4060/cc2262en

This paper summarizes current concepts and approaches for addressing deforestation in the trade, marketing and production of forest-risk agricultural commodities at international, national and landscape level. It aims to generate a greater focus on the role of "producer country" governments at the national and local level in supporting efforts to decouple agricultural production from deforestation.

Status of, and trends in, the Global Core Set of Forest-Related Indicators

https://doi.org/10.4060/cb9963en

This is an accompanying document of the FAO flagship report, The State of the World's Forests 2022. It provides an overview of the 21 forest-related indicators that form the GCS. For each indicator, the report addresses concepts and definitions, its rationale and scope, and the available data.

The Restoration Initiative: 2021 Year in Review

https://doi.org/10.4060/cc2051en

2021 was the third full year of implementation of The Restoration Initiative (TRI). Despite the challenges of the COVID-19 global pandemic, project participants were able to return to the field, using the analyses, policy recommendations and landscape restoration and management plans developed in 2020 to accelerate restoration actions. TRI's global support partners also launched an initiative to attract investment in young enterprises incorporating nature-based solutions.

Forest-based adaptation

Transformational adaptation through forests and trees

https://doi.org/10.4060/cc2886en

As time runs out for global action to avoid disastrous global temperature rises, [Forest-based adaptation: transformational adaptation through forests and trees] calls for a shift in thinking about forests so that they are recognized for their potential to help us adapt to climate change. Investing in forests this way could help support human life and reduce the risks and harm that climate change brings. This publication was developed in partnership with the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF).

From reference levels to results

REDD+ reporting by countries

https://doi.org/10.4060/cc2899en

This working paper provides an update on total emissions reductions achieved and results-based finance unlocked through REDD+ – the UN's programme supporting countries to reduce their emissions by restoring and protecting forests as carbon sinks. It also presents detailed technical analysis and guidance for countries trying to navigate the system for measuring, reporting and verifying results.

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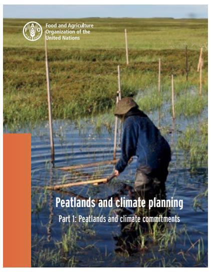
Global forest sector outlook 2050

Assessing future demand and sources of timber for a sustainable economy
Background paper for The State of the World's Forests 2022

The report presents a business-as-usual scenario based on the impact of increased consumption of two wood products consolidated in the market: mass timber and manmade cellulose fiber. From a demand-driven perspective, it discusses the actual forest resource base and production needs to supply future demand by factoring in the use of wood residues and enhanced productivity in the forest sector, as well as the influence of megatrends and policy objectives.

https://doi.org/10.4060/cc2265en


Food and Agriculture Organization of the United Nations
Peatlands and climate planning
Part 1: Peatlands and climate commitments

Peatlands and climate planning

Peatlands only cover 3 percent of the world's land surface but they contain almost twice the carbon stocks of the world's forests. Peatlands and climate planning explains that the contribution peatlands can make to tackling climate change is widely overlooked. Peatlands are often not factored into calculations on national emissions targets, and investments are not made in rewetting peatlands that have been drained or degraded, despite this being a very cost-effective way to reduce emissions. Peatlands can also provide food, water, shelter and employment and as such can help humanity adapt.

https://doi.org/10.4060/cc2895en

Food and Agriculture Organization of the United Nations
UN-REDD PROGRAMME
Carbon rights in the context of jurisdictional REDD+: Tenure links and country-based legal solutions
Information brief

Carbon rights in the context of jurisdictional REDD+

Tenure links and country-based legal solutions

This brief addresses the need for legal frameworks that establish who 'owns' the emissions reductions achieved through REDD+ and how the benefits of results-based finance should be shared between the different actors involved from the state, private landowners and, in particular, local communities.

https://doi.org/10.4060/cc2694en

Food and Agriculture Organization of the United Nations
Policy brief
Grazing with trees
A silvopastoral approach to managing and restoring drylands with trees

Grazing with Trees.

A silvopastoral approach to managing and restoring drylands with trees: Policy brief

This publication highlights how, when properly integrated, livestock grazing can play a key role in restoring degraded land with trees, halting desertification and improving wildfire prevention in drylands. It accompanies an in-depth publication that was launched in September.

https://doi.org/10.4060/cc2903en

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